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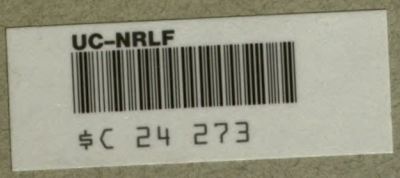

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" Extracts from Greenwich observations for 1855.
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ROYAL OBSERVATORY, GREENWICH.

CATALOGUE

OF

CONCLUDED MEAN RIGHT ASCENSIONS AND NORTH POLAR DISTANCES,

FOR 1855, JANUARY 1,

OF STARS OBSERVED IN THE YEAR 1855,

WITH THE ANNUAL VARIATIONS:

(The North Polar Distances being corrected for Discordance of Direct and Reflexion-Observations, and for Flexure of Telescope of the Transit-Circle :)

ALSO,

NEW CONSTANTS FOR STARS INCLUDED IN THE CATALOGUE,

NOT OBSERVED IN PRECEDING YEARS.

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CATALOGUE OF THE CONCLUDED MEAN RIGHT ASCENSIONS AND MEAN NORTH POLAR DISTANCES, FOR JAN. 1, 1855, OF STARS OBSERVED IN THE YEAR 1855; WITH THE ANNUAL VARIATIONS.

(The N.P.D.'s are corrected for Discordance of Direct and Reflexion Observations, and for Flexure of Telescope of the Transit-Circle.)

No.	Star's Name.	Number of Obs. of R. A.	Fraction of Year for Mean of Obs.	Mean R. A. 1855, Jan. 1.	Annual Variation in R. A.	Number of Obs. of N. P. D. D.	Number of Obs. of N. P. D. R.	Mean N. P. D. 1855, Jan. 1. D.	Mean N. P. D. 1855, Jan. 1. R.	Whole Number of Obs. of N. P. D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N. P. D.	Annual Variation in N. P. D.
				h m s	s			° ′ ″	″			″	″
1	α Andromedæ	6	0·43	0. 0. 54·03	+ 3·084	7		61. 42. 36·87		7	0·38	36·87	— 19·90
2	β Cassiopeiæ	3	0·83	0. 1. 27·92	3·151	3		31. 39. 1·25		3	0·86	1·25	19·89
3	γ Pegasi.....	11	0·81	0. 5. 46·38	3·081	10		75. 37. 22·59		10	0·81	22·59	20·03
4	26 Andromedæ	4	0·61	0. 11. 4·42	3·135	2		47. 0. 52·17		2	0·89	52·17	20·05
	26 Andromedæ S.P.					2		49·41					
5	12 Cassiopeiæ	5	0·85	0. 16. 49·46	3·253	6	1	28. 58. 22·37	24·18	7	0·86	22·63	20·01
6	44 Piscium	1	0·77	0. 17. 58·24	3·075	1		88. 51. 49·88		1	0·77	49·88	20·00
7	12 Ceti.....	8	0·80	0. 22. 38·34	3·063	6		94. 45. 33·13		6	0·81	33·13	19·95
8	13 Ceti.....	2	0·66	0. 27. 47·09	3·085	2		94. 23. 31·07		2	0·66	31·07	19·88
9	B. A. C. 152.....	4	0·77	0. 28. 54·50	3·229	3	1	46. 18. 42·91	41·30	4	0·86	42·51	19·91
	B. A. C. 152 S.P. ..					2		42·04					
10	ε Andromedæ.....	10	0·87	0. 30. 54·11	3·155	9	2	61. 28. 34·59	34·64	11	0·84	34·60	19·67
11	Oeltz. Arg. 599....	1	0·79	0. 32. 11·12	3·347	1		34. 15. 30·75		1	0·79	30·75	19·86
12	α Cassiopeiæ	7	0·72	0. 32. 18·24	3·354	5		34. 15. 31·01		7	0·65	31·16	19·82
	α Cassiopeiæ S.P...					2		31·93					
13	β Ceti.....	10	0·87	0. 36. 18·53	3·013	9		108. 46. 59·30		9	0·84	59·30	19·83
14	ζ Andromedæ	2	0·87	0. 39. 39·57	3·170	2		66. 31. 20·69		2	0·87	20·69	19·69
15	60 Piscium	2	0·89	0. 39. 53·82	3·097	2		84. 3. 4·25		2	0·89	4·25	19·76
16	γ Cassiopeiæ	3	0·85	0. 47. 59·47	3·551	4	3	30. 4. 10·82	11·77	7	0·83	11·23	19·64
17	μ Andromedæ	5	0·72	0. 48. 43·16	3·302	3		52. 17. 17·18		3	0·80	17·18	19·68
18	70 Piscium.....	1	0·60	0. 54. 34·64	3·112			82. 50.....					
19	ε Piscium	8	0·81	0. 55. 25·27	3·114	7		82. 53. 29·65		7	0·85	29·65	19·50
20	e Piscium.....	1	0·73	1. 0. 54·20	3·083	1		85. 7. 7·75		1	0·73	7·75	19·17
21	β Andromedæ	2	0·92	1. 1. 37·60	3·337	2		55. 8. 59·76		2	0·92	59·76	19·27
22	α^1 Ursæ Minoris ...	3	0·50	1. 6. 5·53	17·988	2		1. 28. 3·88		4	0·53	4·57	19·23
	α^1 Ursæ Minoris S.P.					2		5·25					
23	Polaris	110	0·60	1. 6. 30·86	18·212	65	1	1. 27. 48·78	48·88	137	0·48	48·89	19·22
	Polaris S.P.....					68	3	49·00	49·10				
24	38 Ceti.....	2	0·48	1. 7. 25·14	3·056	2		91. 45. 3·82		2	0·48	3·82	19·41
25	40 Ceti.....	3	0·88	1. 9. 33·73	3·066	4		93. 2. 24·94		4	0·90	24·94	19·06
26	f Piscium.....	2	0·48	1. 10. 19·36	3·090	2		87. 9. 1·34		2	0·48	1·34	19·12
27	θ Ceti.....	9	0·62	1. 16. 46·56	2·996	9		98. 55. 58·36		9	0·55	58·36	18·72
28	ρ Piscium.....	1	0·85	1. 18. 26·70	3·217	1		71. 35. 3·03		1	0·85	3·03	18·95
29	94 Piscium	1	0·82	1. 18. 52·08	3·226	1		71. 30. 45·55		1	0·82	45·55	18·87
30	μ Piscium.....	2	0·77	1. 22. 35·43	3·137	2		84. 36. 17·50		2	0·77	17·50	18·59
31	*	1	0·82	1. 23. 0·23	3·088	2		87. 51. 45·39		2	0·84	45·39	18·75
32	η Piscium.....	5	0·75	1. 23. 43·82	3·201	5	1	75. 24. 11·60	10·76	6	0·75	11·46	18·75
33	B. A. C. 458.....	2	0·97	1. 24. 46·08	2·784	2		120. 44. 5·53		2	0·97	5·53	18·70
34	101 Piscium	6	0·91	1. 28. 1·57	3·197	6		76. 4. 53·84		6	0·91	53·84	18·61
35	B. A. C. 477.....	2	0·94	1. 28. 4·37	3·232	2		73. 18. 36·88		2	0·94	36·88	18·66
36	π Piscium.....	5	0·85	1. 29. 24·98	3·172	5		78. 36. 6·86		5	0·85	6·86	18·63
37	B. A. C. 490	1	0·81	1. 29. 57·95	3·190	1		78. 39. 45·75		1	0·81	45·75	18·53
38	105 Piscium	4	0·89	1. 31. 51·76	3·223	4		74. 19. 54·83		4	0·89	54·83	18·46
39	ν Piscium.....	4	0·65	1. 33. 53·34	3·117	5		85. 14. 51·42		5	0·67	51·42	18·37
40	109 Piscium.....	3	0·90	1. 37. 1·05	3·261	3		70. 38. 34·37		3	0·90	34·37	18·21
41	o Piscium.....	1	0·97	1. 37. 44·52	3·162	1		81. 34. 25·22		1	0·97	25·22	18·30
42	46 Cassiopeiæ	2	0·91	1. 44. 48·29	4·531	2		22. 1. 47·90		2	0·91	47·90	17·98
43	β Arietis	4	0·46	1. 46. 38·21	3·298	4		69. 54. 10·23		4	0·46	10·23	17·81
44	B. A. C. 607.....	5	0·93	1. 51. 33·22	3·320	5		69. 38. 52·35		5	0·93	52·35	17·62
45	γ^1 Andromedæ.....	4	0·82	1. 55. 0·99	+ 3·646	3		48. 22. 6·41		3	0·95	6·41	— 17·55
	γ^1 Andromedæ S.P.					1		5·18					

31. This was observed for one of Mr. Hind's variable stars. It is of the 10½ magnitude.

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CATALOGUE OF THE CONCLUDED MEAN R.A. AND MEAN N.P.D. — *continued.*

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1855, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
46	γ^2 Andromedæ.....	3	0·95	1. 55. 1·85	+ 3·642	3		48. 22. 1·78		3	0·95	1·78	− 17·58
47	B. A. C. 632.....	3	0·91	1. 55. 45·85	3·283	3		72. 26. 45·41		3	0·91	45·41	17·59
48	α Arietis	9	0·66	1. 59. 0·44	3·363	9		67. 13. 31·73		9	0·64	31·73	17·26
49	ξ^1 Ceti	2	0·74	2. 5. 19·16	3·169	2		81. 50. 8·10		2	0·74	8·10	17·11
50	67 Ceti.....	4	0·49	2. 9. 45·20	2·988	4		97. 5. 32·87		4	0·53	32·87	16·81
51	ξ^2 Ceti	9	0·69	2. 20. 27·25	3·182	11		82. 11. 32·52		11	0·82	32·52	16·41
52	B. A. C. 777.....	2	0·87	2. 24. 20·92	5·519	2	1	17. 49. 12·06	16·55	3	0·90	13·56	16·22
53	B. A. C. 793.....	6	0·97	2. 28. 8·17	3·276	6		83. 48. 27·22		6	0·97	27·22	17·32
54	31 Arietis	4	0·52	2. 28. 43·76	3·260	4		78. 11. 2·31		4	0·52	2·31	15·93
55	B. A. C. 814.....	2	0·95	2. 32. 24·89	5·030	4	2	22. 47. 45·11	44·74	6	0·95	44·95	15·74
56	14 Persei			2. 34. (40.)		1		46. 19. 21·04		1	0·79	21·04	15·63
57	γ Ceti	10	0·66	2. 35. 47·45	3·100	10		87. 22. 40·32		10	0·66	40·32	15·42
58	38 Arietis	6	0·81	2. 37. 3·88	3·260	6		78. 10. 1·77		6	0·81	1·77	15·46
59	40 Arietis	1	0·11	2. 40. 24·67	3·350	2		72. 19. 23·94		2	0·45	23·94	15·41
60	σ Arietis.....	7	0·80	2. 43. 29·61	3·300	7	1	75. 31. 5·52	7·04	8	0·85	5·71	15.13
61	ε Arietis.....	1	0·82	2. 50. 55·54	3·419	1		69. 14. 33·08		1	0·82	33·08	14·73
62	γ Persei	2	0·48	2. 54. 19·32	4·299	2		37. 3. 55·87		2	0·49	55·87	14·53
63	α Ceti	11	0·76	2. 54. 42·17	3·126	11		86. 28. 54·30		11	0·75	54·30	14·39
64	ρ Persei.....	2	0·52	2. 55. 54·00	3·817	2		51. 43. 30·91		2	0·52	30·91	14·35
65	τ^3 Eridani	2	0·52	2. 55. 59·97	2·643	2		114. 11. 43·14		2	0·52	43·14	14·35
66	53 Arietis.....	1	0·05	2. 59. 16·24	3·363	1		72. 40. 58·15		1	0·05	58·15	14·22
67	κ Persei.....	3	0·56	2. 59. 44·04	4·011	1		45. 41. 45·01		1	0·80	45·01	14·07
	κ Persei S.P.....					2		44·84					
68	δ Arietis	10	0·73	3. 3. 20·66	3·419	9	1	70. 49. 30·22	29·94	10	0·57	30·19	13·98
69	W. B. III. 139.....	1	0·95	3. 8. 24·96	3·303	1		76. 41. 16·56		1	0·95	16·56	13·65
70	τ^1 Arietis	2	0·97	3. 12. 51·81	3·450	2		69. 22. 43·73		2	0·97	43·73	13·31
71	α Persei	7	0·52	3. 13. 59·50	4·241	7		40. 39. 33·14		8	0·56	33·15	13·24
	α Persei S.P.....					1		33·31					
72	Gr. Cat. 1850—217.	1	0·11	3. 15. 42·50	4·242	1		40. 43. 3·45		1	0·11	3·45	13·18
73	Groombridge 660...	3	0·38	3. 15. 44·56	4·243	3		40. 46. 16·40		3	0·38	16·40	13·18
74	o Tauri.....	1	0·04	3. 17. 0·98	3·222	2		81. 29. 4·79		2	0·06	4·79	13·03
75	B. A. C. 1058.....			3. 17. (22.)		1	1	30. 34. 10·26	9·41	2	0·96	9·84	13·10
76	ξ Tauri.....	1	0·95	3. 19. 19·03	3·243	1		80. 46. 35·49		1	0·95	35·49	12·90
77	Rümker 858.....	2	0·91	3. 19. 19·72	3·293	2		77. 46. 28·08		2	0·99	28·08	12·94
78	Gr. Cat. 1850—227.			3. 22. (16.)		1	1	77. 35. 52·36	52·25	2	0·97	52·31	12·74
79	f Tauri.....	2	0·53	3. 22. 52·41	3·305	5	1	77. 33. 48·09	49·92	6	0·64	48·40	12·70
80	ε Eridani	3	0·38	3. 26. 6·02	2·826	3		99. 57. 6·06		3	0·38	6·06	12·41
81	B. A. C. 1111	1	0·97	3. 29. 36·58	5·121	2	1	27. 15. 32·20	31·44	3	0·37	31·95	12·32
82	11 Tauri.....	2	0·51	3. 32. 7·19	3·569	3	1	65. 8. 36·20	36·70	4	0·74	36·33	12·01
83	o Persei.....	2	0·59	3. 35. 14·19	3·734	2		58. 10. 29·90		2	0·59	29·90	11·87
84	W. B. III. 680.....	1	0·11	3. 35. 51·51	2·861	1		100. 58. 16·20		1	0·11	16·20	11·80
85	17 Tauri	3	0·36	3. 36. 16·30	3·549	3		66. 20. 47·55		3	0·55	47·55	11·74
86	B. A. C. 1152.....	1	0·04	3. 36. 38·39	2·864			100. 57.					
87	25 Eridani	1	0·11	3. 37. 31·81	3·056	1		90. 45. 21·00		1	0·11	21·00	11·64
88	η Tauri.....	7	0·32	3. 38. 52·34	3·550	11	1	66. 20. 49·81	46·81	12	0·44	49·56	11·52
89	W. B. III. 767.....	1	0·95	3. 40. 26·49	3·271	1		79. 39. 10·36		1	0·95	10·36	11·47
90	B. A. C. 1192.....	1	0·11	3. 41. 36·34	3·602	2		64. 51. 43·94		2	0·12	43·94	11·14
91	32 Tauri	3	0·10	3. 48. 18·41	3·532	3		67. 56. 37·32		3	0·10	37·32	10·76
92	γ Eridani	4	0·33	3. 51. 15·94	2·794	6		103. 55. 26·92		6	0·40	26·92	10·57
93	λ Tauri.....	2	0·06	3. 52. 39·05	+ 3·315	2		77. 55. 23·73		2	0·06	23·73	− 10·59

72. Of the 8th magnitude. The designation of this star refers to the Greenwich Catalogue of 1576 Stars for 1850, and the same must be understood of all similar designations.

73. Of the 7th magnitude.

77. Of the 7th magnitude.

M748694

CATALOGUE OF THE CONCLUDED MEAN R. A. AND MEAN N. P. D.—*continued.*

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1855, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
94	ω^1 Tauri	1	0·99	4. 0. 43·33	+ 3·485	1		70. 46. 40·55		1	0·99	40·55	— 9·92
95	W. B. IV. 21	3	0·97	4. 2. 18·61	3·221	3		82. 41. 10·12		3	0·97	10·12	9·85
96	B. A. C. 1280	1	0·97	4. 2. 25·24	7·654	4	4	14. 15. 37·98	38·20	8	0·75	38·09	9·84
97	46 Tauri	1	0·99	4. 5. 44·80	3·223	1		82. 39. 27·38		1	0·99	27·38	9·60
98	o^2 Eridani	8	0·32	4. 8. 35·86	2·763	7		97. 52. 55·44		7	0·35	55·44	5·92
99	φ Tauri	4	0·11	4. 11. 26·58	3·674	4		63. 0. 1·36		4	0·11	1·36	9·11
100	γ Tauri	8	0·36	4. 11. 32·74	3·407	8		74. 43. 34·89		8	0·37	34·89	9·12
101	χ^1 Tauri	5	0·31	4. 13. 45·84	3·641	5		64. 43. 1·71		5	0·31	1·71	8·93
102	χ^2 Tauri	1	0·14	4. 13. 46·48	3·636	1		64. 42. 43·99		1	0·14	43·99	8·97
103	δ^1 Tauri	3	0·67	4. 14. 34·69	3·451	3		72. 48. 5·74		3	0·67	5·74	8·89
104	δ^2 Tauri	1	0·67	4. 15. 44·50	3·452	1		72. 53. 44·56		1	0·67	44·56	8·81
105	κ^1 Tauri	6	0·12	4. 16. 43·99	3·560	6		68. 2. 32·80		6	0·12	32·80	8·69
106	Lalande 8336	1	0·98	4. 18. 33·43	3·483	1		71. 12. 23·49		1	0·98	23·49	8·59
107	ε Tauri	14	0·41	4. 20. 9·26	3·495	17		71. 8. 43·64		17	0·45	43·64	8·45
108	m Persei			4. 23. (13.)		1		47. 15. 5·37		1	0·99	5·37	8·22
109	Aldebaran	18	0·43	4. 27. 36·26	3·434	17		73. 47. 11·44		17	0·40	11·44	7·69
110	υ^7 Eridani	1	0·97	4. 29. 55·00	2·333	1		120. 51. 45·11		1	0·97	45·11	7·65
111	Lalande 8845	2	0·99	4. 34. 18·77	3·276	2		80. 38. 45·32		2	0·99	45·32	7·32
112	μ Eridani	6	0·13	4. 38. 15·25	3·001	4		93. 31. 26·85		4	0·13	26·85	7·01
113	9 Camelopardali	2	0·09	4. 39. 38·98	5·910	3	2	23. 54. 38·94	39·78	5	0·08	39·28	6·91
114	ι Aurigæ	8	0·32	4. 47. 33·42	3·896	9	1	57. 4. 5·88	6·37	10	0·29	5·93	6·22
115	B. A. C. 1526	4	0·33	4. 49. 0·00	3·462	4		73. 4. 41·51		4	0·32	41·51	6·11
116	ι Tauri	1	0·07	4. 54. 25·88	3·581	1		68. 37. 18·56		1	0·07	18·56	5·62
117	η Aurigæ	1	0·99	4. 56. 21·24	4·196	1		48. 58. 1·59		1	0·99	1·59	5·45
118	B. A. C. 1565	3	0·41	4. 58. 44·75	9·682	4	2	10. 56. 51·86	53·74	6	0·54	52·49	5·35
119	l Tauri	1	0·05	4. 59. 13·73	3·547	1		69. 46. 37·93		1	0·05	37·93	5·21
120	ε Leporis	2	0·57	4. 59. 19·43	2·538	3		112. 34. 8·67		3	0·44	8·67	5·20
121	Capella Capella S.P.	16	0·50	5. 5. 59·02	4·419	10 5	1	44. 9. 18·92 18·16	18·77	11	0·58	18·91	4·25
122	Gr. Cat. 1850—355			5. 7. (34.)		1		98. 22. 32·34		1	0·99	32·34	4·55
123	Rigel	11	0·35	5. 7. 34·28	2·880	11		98. 22. 22·46		11	0·35	22·46	4·53
124	*	2	0·10	5. 10. 22·98	3·106	2		88. 25. 40·43		2	0·10	40·43	4·31
125	λ Leporis	7	0·24	5. 12. 53·78	2·764	7		103. 19. 48·41		7	0·24	48·41	4·07
126	β Tauri	8	0·40	5. 17. 7·73	3·788	10	4	61. 31. 11·99	11·60	14	0·33	11·88	3·53
127	o Tauri	1	0·90	5. 18. 55·66	3·602	1		68. 11. 30·18		1	0·90	30·18	3·60
128	β Leporis	6	0·27	5. 22. 2·01	2·572	4		110. 52. 42·82		4	0·16	42·82	3·23
129	χ Aurigæ	2	0·08	5. 23. 17·57	3·905	2		57. 55. 13·18		2	0·08	13·18	3·24
130	δ Orionis	6	0·43	5. 24. 36·03	3·064	6		90. 24. 37·32		6	0·42	37·32	3·05
131	Gr. Cat. 1850—390	1	0·14	5. 25. 49·21	3·732	1		63. 25. 50·24		1	0·14	50·24	2·98
132	*	1	0·98	5. 25. 55·18	3·741	1		63. 7. 40·17		1	0·98	40·17	2·97
133	α Leporis	1	0·17	5. 26. 20·20	2·646	1		107. 55. 47·22		1	0·17	47·22	2·94
134	121 Tauri	1	0·99	5. 26. 35·87	3·663	1		66. 3. 42·75		1	0·99	42·75	2·89
135	λ Orionis	2	0·16	5. 27. 9·23	3·302	2		80. 10. 1·57		2	0·16	1·57	2·83
136	*	1	0·17	5. 28. 5·55	2·931	1		96. 1. 35·76		1	0·17	35·76	2·78
137	ι Orionis	2	0·10	5. 28. 20·39	2·936	3		96. 0. 31·15		3	0·38	31·15	2·75
138	ε Orionis	5	0·30	5. 28. 51·42	3·041	5		91. 17. 54·56		5	0·30	54·56	2·70
139	ζ Tauri	2	0·93	5. 28. 58·89	3·585	2		68. 57. 2·27		2	0·93	2·27	2·68
140	α Columbæ	4	0·15	5. 34. 23·99	2·177	4		124. 9. 16·63		4	0·15	16·63	2·23
141	31 Camelopardali	1	0·18	5. 41. 59·44	5·366			30. 9.					
142	α Orionis	15	0·31	5. 47. 19·36	+ 3·247	11		82. 37. 27·49		11	0·23	27	— 1·10

124. Of the 9-10th magnitude.

131. Of the 10th magnitude.

136. Of the 9th magnitude.

CATALOGUE OF THE CONCLUDED MEAN R. A. AND MEAN N. P. D.—*continued.*

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1855, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
143	β Aurigæ.....	3	0·16	5. 48. 53·77	+ 4·404	3		45. 4. 24·26		3	0·16	24·26	— 0·94
144	θ Aurigæ.....	1	0·05	5. 49. 50·02	4·092	2		52. 48. 10·25		2	0·11	10·25	0·78
145	1 Geminorum	7	0·26	5. 55. 18·44	3·648	6		66. 44. 1·70		6	0·15	1·70	0·30
146	*	2	0·15	5. 58. 26·80	3·724	2		63. 57. 40·14		2	0·13	40·14	0·14
147	*	2	0·17	5. 59. 28·52	3·723	2		64. 1. 9·09		2	0·17	9·09	0·05
148	*	2	0·08	5. 59. 39·97	3·726	2		63. 54. 55·29		2	0·08	55·29	— 0·03
149	3 Geminorum	2	0·10	6. 0. 55·72	3·648	1		66. 52. 4·60		1	0·05	4·60	+ 0·10
150	η Geminorum.....	9	0·25	6. 6. 7·59	3·624	10	1	67. 27. 21·40	20·25	11	0·24	21·30	0·55
151	κ Aurigæ.....	1	0·18	6. 6. 8·38	3·828	1		60. 27. 12·44		1	0·18	12·44	0·83
152	W. B. VI. 334.....	1	0·04	6. 11. 36·51	2·731			104. 17.....					
153	W. B. VI. 348.....	1	0·18	6. 11. 59·78	2·731	1		104. 18. 22·64		1	0·18	22·64	1·05
154	7 Monocerotis.....	5	0·14	6. 12. 43·82	2·893	4		97. 45. 57·60		4	0·15	57·60	1·09
155	μ Geminorum	4	0·41	6. 14. 11·34	3·632	7	1	67. 24. 60·31	59·95	8	0·54	60·27	1·37
156	ζ Canis Majoris....	1	0·18	6. 14. 44·92	2·304	1		120. 0. 7·79		1	0·18	7·79	1·32
157	B. A. C. 2058	1	0·14	6. 15. 47·81	3·697	1		64. 52. 47·74		1	0·14	47·74	1·48
158	β Canis Majoris ...	2	0·15	6. 16. 18·98	2·643	2		107. 53. 16·52		2	0·15	16·52	1·43
159	ν Geminorum.....	1	0·90	6. 20. 21·23	3·566	1		69. 42. 3·28		1	0·90	3·28	1·81
160	19 Geminorum	2	0·19	6. 23. 17·06	3·455	2		73. 59. 59·32		2	0·19	59·32	2·03
161	12 Monocerotis	1	0·14	6. 24. 37·51	3·186	1		85. 2. 37·88		1	0·14	37·88	2·25
162	49 Aurigæ.....	3	0·17	6. 26. 4·12	3·784	2		61. 52. 10·39		2	0·16	10·39	2·30
163	γ Geminorum	2	0·19	6. 29. 20·15	3·469	3		73. 28. 53·90		3	0·15	53·90	2·59
164	*	1	0·14	6. 29. 25·92	3·677	1		65. 25. 44·67		1	0·14	44·67	2·57
165	Cephei 51 Hev..... Cephei 51 Hev. S.P.	14	0·47	6. 31. 6·56	30·528	8 18		2. 44. 51·17 51·66		26	0·47	51·51	2·82
166	15 Monocerotis.....	2	0·54	6. 32. 59·65	3·310	2		79. 58. 28·17		2	0·54	28·17	2·96
167	B. A. C. 2189.....	3	0·18	6. 33. 38·09	3·078	3		89. 22. 24·97		3	0·18	24·97	3·00
168	28 Geminorum	2	0·18	6. 35. 34·06	3·810	2		60. 53. 13·22		2	0·18	13·22	3·13
169	Sirius.....	15	0·32	6. 38. 45·49	2·646	16		106. 31. 12·61		16	0·37	12·61	4·60
170	58 Aurigæ S.P.....	1	0·65	6. 40. 30·52	4·248	1		48. 3. 10·94					
171	33 Geminorum	3	0·16	6. 41. 28·96	3·459	3		73. 38. 12·31		3	0·16	12·31	3·55
172	*d* Geminorum	4	0·18	6. 42. 51·54	3·607	4		68. 4. 21·55		4	0·18	21·55	3·75
173	37 Geminorum	5	0·16	6. 46. 23·55	3·696	5		64. 26. 52·21		5	0·16	52·21	4·03
174	θ Canis Majoris....	3	0·21	6. 47. 27·24	2·791	5		101. 51. 37·77		5	0·33	37·77	4·16
175	ε Canis Majoris....	7	0·18	6. 52. 55·68	2·358	7		118. 46. 39·78		7	0·18	39·78	4·60
176	ζ Geminorum	1	0·30	6. 55. 30·49	3·567	1		69. 13. 17·17		1	0·30	17·17	4·83
177	o^2 Canis Majoris ...	1	0·19	6. 56. 58·20	2·507	1		113. 37. 29·76		1	0·19	29·76	4·93
178	γ Canis Majoris....	3	0·19	6. 57. 11·92	2·718	3		105. 25. 20·55		3	0·19	20·55	4·98
179	δ Canis Majoris....	6	0·18	7. 2. 29·79	2·441	5		116. 9. 57·78		5	0·28	57·78	5·38
180	48 Geminorum	4	0·16	7. 3. 37·57	3·657	4		65. 38. 0·85		4	0·16	0·85	5·51
181	53 Geminorum	5	0·16	7. 6. 53·67	3·758	5		61. 51. 18·79		5	0·16	18·79	5·78
182	64 Aurigæ S.P.....	1	0·65	7. 7. 57·04	4·190	1		48. 51. 42·51					
183	δ Geminorum.....	8	0·44	7. 11. 27·68	3·593	8		67. 45. 18·73		8	0·43	18·73	6·17
184	*			7. 12 ±		1		67. 45. 26·60		1	0·90	26·60	6·20
185	π Argûs.....	2	0·17	7. 12. 1·35	2·141	3		126. 50. 22·67		3	0·15	22·67	6·18
186	ι Geminorum.....	1	0·23	7. 16. 43·08	3·741	1		61. 55. 5·36		1	0·23	5·36	6·68
187	β Canis Minoris ...	4	0·19	7. 19. 17·19	3·261	3		81. 25. 21·21		3	0·16	21·21	6·85
188	b^1 Geminorum	5	0·19	7. 20. 18·20	3·752	4		61. 35. 15·01		4	0·20	15·01	6·92
189	b^2 Geminorum.....	4	0·17	7. 20. 47·43	3·746	4		61. 47. 21·70		4	0·17	21·70	6·94
190	a^1 Geminorum.....	10	0·41	7. 25. 20·10	+ 3·856	7		57. 47. 56·28		7	0·33	56·28	+ 7·30

146. Of the 11th magnitude.

148. Of the 7th magnitude.

CATALOGUE OF THE CONCLUDED MEAN R. A. AND MEAN N. P. D.—*continued.*

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1855, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
191	Castor	15	0·37	7. 25. 20·50	+ 3·844	14		57. 47. 53·96		14	0·38	53·96	+ 7·37
192	Procyon	20	0·35	7. 31. 42·65	3·145	19		84. 24. 25·43		19	0·35	25·43	8·85
193	Pollux	20	0·34	7. 36. 26·29	3·682	22		61. 37. 40·03		22	0·36	40·03	8·25
194	B. A. C. 2596			7. 42. (45.)		2	2	15. 42. 11·37	11·91	4	0·17	11·64	8·69
195	ξ Navis.....	6	0·20	7. 43. 11·83	2·527	6		114. 29. 55·70		6	0·20	55·70	8·72
196	ω^1 Cancri	6	0·20	7. 52. 9·15	3·645	5		64. 12. 51·34		5	0·19	51·34	9·41
197	6 Cancri	4	0·19	7. 54. 36·38	3·701	7	2	61. 48. 11·57	12·54	9	0·19	11·79	9·68
198	15 Argûs	10	0·20	8. 1. 22·17	2·555	10		113. 53. 21·75		10	0·20	21·75	10·07
199	β Cancri.....	6	0·30	8. 8. 39·00	3·263	6		80. 22. 17·32		6	0·30	17·32	10·74
200	W. B. VIII. 262 ...	1	0·24	8. 10. 31·68	3·262	1		80. 24. 7·25		1	0·24	7·25	10·81
201	χ Cancri.....	4	0·20	8. 11. 14·98	3·665	4		62. 19. 0·25		4	0·20	0·25	11·24
202	31 Lyncis S.P.....	2	0·68	8. 12. 53·70	4·139	2		46. 21. 9·69					
203	η Cancri	6	0·17	8. 24. 19·06	3·485	7		69. 4. 12·14		7	0·17	12·14	11·84
204	Groombridge 1452 .			8. 29. (32.)		1	1	9. 28. 14·50	12·08	2	0·24	13·29	12·17
205	B. A. C. 2930.....	1	0·18	8. 33. 56·09	9·367	1		9. 26. 24·87		1	0·18	24·87	12·48
206	γ Cancri.....	4	0·33	8. 34. 53·38	3·487	6		68. 0. 48·92		6	0·27	48·92	12·52
207	ε Hydræ	11	0·25	8. 39. 5·66	3·185	11		83. 3. 8·93		11	0·24	8·93	12·87
208	35 Lyncis S. P.....	5	0·67	8. 42. 12·02	4·065	5		45. 44. 16·11					
209	ι Ursæ Majoris	7	0·58	8. 49. 15·67	4·147	2		41. 23. 34·66		2	0·21	34·66	13·78
	ι Ursæ Majoris S.P..					5		34·42					
210	α Cancri	7	0·21	8. 50. 33·21	3·292	8	1	77. 35. 2·49	1·68	9	0·19	2·40	13·62
211	10 Ursæ Majoris ...	2	0·68	8. 51. 12·65	3·929	3		47. 38. 54·39					
	10 Ursæ Majoris S.P.												
212	ν Cancri	1	0·01	8. 54. 15·22	3·524	1		64. 58. 48·68		1	0·01	48·68	13·89
213	σ^2 Ursæ Maj. (1st Star)	1	0·17	8. 57. 33·54	5·403	1		22. 16. 53·43		1	0·17	53·43	14·03
214	σ^3 Ursæ Maj. (2d Star)	5	0·21	8. 57. 34·22	5·400	5	1	22. 16. 54·99	55·54	6	0·23	55·08	14·13
215	κ Cancri	7	0·22	8. 59. 53·45	3·261	6		78. 45. 4·51		6	0·23	4·51	14·15
216	ξ Cancri	1	0·16	9. 1. 0·91	3·465	1		67. 22. 16·11		1	0·16	16·11	14·23
217	B. A. C. 3138	5	0·24	9. 5. 19·98	3·446	5		68. 7. 20·67		5	0·24	20·67	14·52
218	π Cancri	2	0·22	9. 7. 13·32	3·324	2		74. 27. 35·91		2	0·22	35·91	14·60
219	*	1	0·25	9. 10. 3·80	3·370			71. 40.					
220	83 Cancri	5	0·25	9. 10. 53·01	3·360	7	2	71. 40. 57·20	56·24	9	0·23	56·99	15·00
221	*h* Ursæ Majoris			9. 20. (3.)		2	2	26. 18. 28·50	28·52	4	0·19	28·51	15·32
222	α Hydræ	10	0·25	9. 20. 27·72	2·948	7		98. 1. 56·87		7	0·25	56·87	15·36
223	θ Ursæ Majoris	9	0·61	9. 23. 8·06	4·060	2		37. 39. 53·26		8	0·65	52·81	16·10
	θ Ursæ Majoris S.P..					6		52·51					
224	λ Leonis	1	0·31	9. 23. 26·51	3·440	1		66. 23. 43·40		1	0·31	43·40	15·60
225	42 Lyncis S.P.....			9. 29. (18.)		2		49. 6. 45·94					
226	9 Leonis.....	4	0·22	9. 29. 31·62	3·452	4		64. 40. 51·08		4	0·22	51·08	15·95
227	o Leonis	5	0·24	9. 33. 24·55	3·227	5	1	79. 27. 1·73	1·75	6	0·22	1·73	16·14
228	ψ Leonis.....	3	0·21	9. 35. 49·86	3·279	3		75. 19. 2·18		3	0·21	2·18	16·25
229	ε Leonis	7	0·27	9. 37. 36·82	3·422	7		65. 33. 38·46		7	0·27	38·46	16·33
230	μ Leonis.....	10	0·25	9. 44. 30·57	3·427	9		63. 18. 45·22		9	0·24	45·22	16·71
231	π Leonis.....	9	0·24	9. 52. 32·88	3·181	7		81. 15. 44·30		7	0·22	44·30	17·06
232	η Leonis	1	0·99	9. 59. 25·29	3·284	1		72. 31. 56·65		1	0·99	56·65	17·34
233	Regulus	15	0·33	10. 0. 38·76	3·203	14		77. 19. 33·90		14	0·32	33·90	17·39
234	34 Leonis	1	0·16	10. 3. 50·02	3·241	1		75. 55. 52·88		1	0·16	52·88	17·64
235	*	1	0·20	10. 4. 32·48	3·298	1		70. 36. 50·75		1	0·20	50·75	17·56
236	Groombridge 1626 .	3	0·29	10. 7. 26·19	3·670	3		46. 28. 54·75		3	0·28	54·75	17·68
237	λ Ursæ Majoris S.P.	1	0·73	10. 8. 20·22	3·657	1		46. 21. 53·65					
238	B. A. C. 3506.....	2	0·27	10. 8. 21·94	+ 3·284	2		71. 32. 24·41		2	0·27	24·41	+ 17·72

205. The resulting N.P.D. appears to be several seconds in error, by comparison with the Greenwich Catalogue of 1576 Stars for 1850.

CATALOGUE OF THE CONCLUDED MEAN R.A. AND MEAN N.P.D.—*continued.*

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1855, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
239	Gr. Cat. 1850—703.	1	0·29	10. 11. 37·23	+ 3·333	1		66. 46. 4·84		1	0·29	4·84	+ 17·85
240	γ^1 Leonis	6	0·27	10. 11. 58·38	3·321	6		69. 25. 36·83		6	0·27	36·83	18·02
241	γ^2 Leonis	3	0·26	10. 11. 58·69	3·299	3		69. 25. 38·35		3	0·26	38·35	17·87
242	B. A. C. 3531	1	0·26	10. 13. 37·23	4·439	1		23. 42. 10·03		1	0·26	10·03	17·99
243	μ Ursæ Majoris S.P.	1	0·73	10. 13. 40·66	3·613	1		47. 46. 26·92					
244	α Antliæ	5	0·30	10. 20. 31·35	2·736	5		120. 19. 51·18		5	0·30	51·18	18·25
245	i Leonis	2	0·19	10. 24. 27·15	3·216	2		75. 7. 13·16		2	0·19	13·16	18·38
246	ρ Leonis	13	0·31	10. 25. 10·40	3·171	16		79. 56. 56·33		16	0·38	56·33	18·40
247	B. A. C. 3645.....			10. 31. (26.)		1	1	20. 48. 4·71	2·73	2	0·18	3·72	18·55
248	Gr. Cat. 1850—721.	2	0·27	10. 34. 14·43	4·597	2		17. 43. 40·64		2	0·27	40·64	18·67
249	34 Sextantis	10	0·33	10. 35. 8·13	3·105	8		85. 39. 38·07		8	0·27	38·07	18·71
250	37 Sextantis	1	0·99	10. 38. 32·54	3·132	1		82. 51. 52·80		1	0·99	52·80	18·85
251	l Leonis	10	0·26	10. 41. 37·97	3·163	11		78. 41. 20·30		11	0·26	20·30	18·89
252	d Leonis.....	12	0·25	10. 53. 4·26	3·104	12		85. 36. 18·50		12	0·26	18·50	19·26
253	α Ursæ Majoris....	11	0·53	10. 54. 44·64	3·778	11	3	27. 28. 3·27	2·05	17	0·45	2·98	19·34
	α Ursæ Majoris S.P.					3		2·81					
254	χ Leonis.....	7	0·28	10. 57. 32·13	3·103	7		81. 52. 52·71		7	0·28	52·71	19·40
255	δ Leonis	9	0·39	11. 6. 23·49	3·204	11	1	68. 40. 58·12	57·46	12	0·36	58·07	19·66
256	B. A. C. 3836.....	4	0·30	11. 6. 26·42	3·087	4		86. 56. 30·22		4	0·30	30·22	19·52
257	θ Leonis	2	0·20	11. 6. 37·61	3·160	2		73. 46. 44·09		2	0·20	44·09	19·55
258	ξ^1 Ursæ Majoris ...	5	0·29	11. 10. 26·17	3·222	4		57. 39. 19·90		4	0·30	19·90	20·16
259	ξ^2 Ursæ Majoris ...	5	0·29	11. 10. 26·51	3·222	4		57. 39. 21·90		4	0·30	21·90	20·16
260	δ Crateris	8	0·30	11. 12. 5·63	2·994	8		103. 59. 39·74		8	0·30	39·74	19·44
261	σ Leonis	3	0·51	11. 13. 39·48	3·099	4		83. 10. 36·55		4	0·47	36·55	19·66
262	B. A. C. 3875	2	0·29	11. 16. 11·70	2·906	3		125. 22. 12·99		3	0·28	12·99	19·90
263	ι Leonis	2	0·13	11. 16. 21·82	3·137	2		78. 40. 21·39		2	0·13	21·39	19·75
264	83 Leonis.....	2	0·32	11. 19. 24·86	3·036	2		86. 11. 49·39		2	0·32	49·39	19·58
265	Piazzi XI. 71	2	0·32	11. 19. 26·00	3·087	2		86. 12. 14·34		2	0·32	14·34	19·74
266	τ Leonis	13	0·29	11. 20. 28·78	3·091	16		86. 20. 44·94		16	0·38	44·94	19·78
267	W. B. XI. 349	3	0·25	11. 20. 29·74	3·086	2		86. 22. 17·57		2	0·30	17·57	19·76
268	B. A. C. 3928	6	0·30	11. 25. 52·72	2·942	6		121. 3. 18·92		6	0·30	18·92	19·86
269	89 Leonis	5	0·29	11. 26. 56·69	3·076	5		86. 8. 5·08		5	0·29	5·08	19·97
270	B. A. C. 3934.... 20 Crateris.....	1	0·28	11. 27. 27·30	2·897	1		122. 3. 50·13		1	0·28	50·13	19·03
271	ν Leonis	7	0·31	11. 29. 31·51	3·074	7		90. 1. 24·88		7	0·29	24·88	19·87
272	3 Draconis	1	0·30	11. 34. 20·51	3·426	3	2	22. 27. 11·28	8·89	5	0·26	10·32	19·88
273	ν Virginis.....	1	0·32	11. 38. 24·38	3·093	1		82. 39. 30·42		1	0·32	30·42	20·16
274	A[1] Virginis	4	0·28	11. 40. 27·84	3·092	5		80. 56. 56·67		5	0·28	56·67	20·00
275	93 Leonis.....	1	0·31	11. 40. 30·20	3·106	2	1	68. 58. 31·37	32·53	3	0·29	31·76	19·98
276	β Leonis	11	0·33	11. 41. 39·68	3·065	12		74. 37. 3·55		12	0·31	3·55	20·09
277	Groomb. 1830.. B. A. C. 4010 ..	2	0·33	11. 44. 36·58	3·487	2		51. 14. 30·67		2	0·32	30·67	25·71
278	28 Crateris .... B. A. C. 4015 ..	6	0·28	11. 45. 35·66	3·015	6		123. 6. 6·07		6	0·28	6·07	20·04
279	γ Ursæ Majoris....	2	0·48	11. 46. 11·22	3·196	2		35. 29. 57·96		2	0·48	57·96	20·02
280	Lalande 22547.....	4	0·31	11. 51. 16·45	3·112	4		51. 19. 0·07		4	0·31	0·07	20·04
281	π Virginis	6	0·40	11. 53. 26·54	3·079	6		82. 34. 37·94		6	0·53	37·94	20·10
282	o Virginis.....	1	0·99	11. 57. 49·37	3·064	1		80. 27. 41·57		1	0·99	41·57	20·05
283	*	1	0·33	11. 58. 8·83	3·061	1		95. 9. 58·16		1	0·33	58·16	20·05
284	W. B. XI. 1013....	1	0·33	11. 59. 48·01	3·071	1		95. 16. 41·22		1	0·33	41·22	20·06
285	ϵ Corvi.....	2	0·35	12. 2. 40·41	+ 3·078	2		111. 48. 47·77		2	0·35	47·77	+ 20·03

248. Of the 8-9th magnitude.

CATALOGUE OF THE CONCLUDED MEAN R. A. AND MEAN N. P. D.—*continued.*

No.	Star's Name.	Number of Obs. of R. A.	Fraction of Year for Mean of Obs.	Mean R. A. 1855, Jan. 1.	Annual Variation in R. A.	Number of Obs. of N. P. D. D.	Number of Obs. of N. P. D. R.	Mean N. P. D. 1855, Jan. 1. D.	Mean N. P. D. 1855, Jan. 1. R.	Whole Number of Obs. of N. P. D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N. P. D.	Annual Variation in N. P. D.
				h m s	s			° ′ ″	″			″	″
286	B. A. C. 4112			12. 5. (21.)		1	1	11. 34. 40·25	40·93	2	0·35	40·59	+ 20·03
287	13 Virginis.....	1	0·33	12. 11. 14·42	+ 3·075	1		89. 58. 52·38		1	0·33	52·38	20·09
288	η Virginis.....	7	0·41	12. 12. 29·29	3·067	10		89. 51. 38·44		10	0·44	38·44	20·07
289	B. A. C. 4205	3	0·32	12. 21. 23·40	3·007	7	5	62. 58. 12·35	13·26	12	0·33	12·73	19·97
290	δ Corvi.....	5	0·48	12. 22. 22·02	3·106	7		105. 42. 27·68		7	0·43	27·68	20·12
291	β Corvi.....	8	0·41	12. 26. 46·65	3·130	7		112. 35. 39·14		7	0·45	39·14	19·99
292	κ Draconis			12. 27. (16.)		2	2	19. 24. 44·31	44·17	4	0·25	44·24	19·96
293	f Virginis.....	5	0·42	12. 29. 19·40	3·085	5		95. 1. 55·90		5	0·42	55·90	19·98
294	χ Virginis	3	0·31	12. 31. 45·87	3·094	3		97. 11. 49·04		3	0·31	49·04	19·91
295	γ^1 Virginis.....	3	0·72	12. 34. 18·88	3·040	4		90. 39. 10·78		4	0·64	10·78	19·85
296	γ Virginis (as one mass)	1	0·39	12. 34. 18·85	3·040			90. 39.....					
297	γ^2 Virginis.....	3	0·72	12. 34. 19·02	3·040	4		90. 39. 14·88		4	0·64	14·88	19·85
298	28 Virginis	5	0·31	12. 34. 27·94	3·099	5		96. 42. 8·64		5	0·31	8·64	19·85
299	37 Virginis			12. 44. (14.)		1		86. 9. 12·42		1	0·33	12·42	19·67
300	38 Virginis	1	0·31	12. 45. 45·86	3·072	1		92. 45. 52·61		1	0·31	52·61	19·69
301	35 Comæ	1	0·39	12. 46. 9·24	2·960	1		67. 57. 57·45		1	0·39	57·45	19·69
302	δ Virginis	6	0·66	12. 48. 18·14	3·023	7		85. 48. 49·36		7	0·52	49·36	19·71
303	12 Can. Ven. (1st Star)	2	0·36	12. 49. 13·12	2·820	1		50. 54. 5·12		1	0·39	5·12	19·60
304	12 Can. Ven. (2d Star)	2	0·36	12. 49. 14·36	2·818	3	3	50. 53. 52·34	51·07	6	0·30	51·71	19·54
305	8 Draconis.....			12. 49. (41.)		1	1	23. 46. 26·34	27·39	2	0·33	26·87	19·65
306	k Virginis.....	1	0·32	12. 52. 11·54	3·088	2		93. 1. 44·62		2	0·32	44·42	19·50
307	θ Virginis	3	0·71	13. 2. 26·76	3·101	4		94. 45. 48·95		4	0·63	48·95	19·36
308	Spica	27	0·47	13. 17. 33·56	3·149	29		100. 24. 11·12		29	0·56	11·12	18·96
309	l^2 Virginis.....	1	0·39	13. 24. 25·77	3·116	1		95. 30. 20·40		1	0·39	20·40	18·76
310	B. A. C. 4527.....			13. 25. (46).		1	1	10. 36. 24·36	23·91	2	0·29	24·14	18·65
311	B. A. C. 4531.....	1	0·39	13. 26. 58·20	3·183	1		102. 28. 16·62		1	0·39	16·62	18·69
312	ζ Virginis.....	9	0·40	13. 27. 18·44	3·055	10		89. 51. 11·28		10	0·37	11·28	18·56
313	B. A. C. 4536.....	2	0·41	13. 28. 19·20	2·690	2		52. 4. 24·75		2	0·41	24·75	18·67
314	83 Virginis			13. 36. (41.)		1		105. 26. 51·93		1	0·33	51·93	18·36
315	i Centauri	5	0·38	13. 37. 27·67	3·390	5		122. 18. 29·95		5	0·38	29·95	18·46
316	τ Bootis	3	0·24	13. 40. 22·31	2·856	6	1	71. 49. 8·27	8·02	7	0·29	8·23	18·11
317	η Ursæ Majoris S.P.	3	0·94	13. 41. 49·28	2·374	3		39. 57. 41·21		3	0·94	41·21	18·13
318	k^1 Centauri.....	2	0·38	13. 43. 28·21	3·444	2		122. 16. 15·37		2	0·38	15·37	18·16
319	k^2 Centauri.....	1	0·42	13. 43. 28·90	3·439	1		122. 16. 24·41		1	0·42	24·41	18·05
320	η Bootis	6	0·41	13. 47. 46·84	2·858	9	2	70. 52. 25·72	25·26	11	0·38	25·64	18·23
321	τ Virginis.....	3	0·45	13. 54. 16·20	3·050	3		87. 45. 6·48		3	0·42	6·48	17·68
322	B. A. C. 4700.....	3	0·40	14. 2. 55·64	3·257	3		105. 36. 53·26		3	0·40	53·26	17·30
323	κ Virginis.....	4	0·38	14. 5. 10·00	3·196	5		99. 35. 47·04		5	0·36	47·04	17·13
324	B. A. C. 4722.....	1	0·38	14. 7. 25·07	3·302	1		107. 31. 17·32		1	0·38	17·32	17·05
325	Arcturus	21	0·58	14. 9. 2·95	2·733	23		70. 3. 38·60		23	0·54	38·60	18·94
326	λ Virginis.....	3	0·35	14. 11. 16·17	3·238	3		102. 42. 4·83		3	0·35	4·83	16·83
327	ρ Bootis	8	0·41	14. 25. 34·87	2·590	9	2	58. 59. 24·28	24·66	11	0·42	24·35	16·01
328	σ Bootis	1	0·39	14. 28. 21·98	2·615	1		59. 37. 22·21		1	0·39	22·21	15·88
329	Oeltz. Arg. 14703..	1	0·42	14. 30. 4·29	1·405			26. 4.					
330	ε Bootis	13	0·46	14. 38. 39·30	2·619	12	1	62. 18. 43·73	44·72	13	0·47	43·81	15·43
331	8 Libræ	2	0·44	14. 42. 40·36	3·308	2		105. 23. 30·85		2	0·44	30·85	15·28
332	α Libræ	8	0·47	14. 42. 51·82	3·306	8		105. 26. 10·80		8	0·49	10·80	15·26
333	B. A. C. 4896.....	3	0·43	14. 43. 28·79	3·336	3		107. 11. 2·69		3	0·43	2·69	15·33
334	6 Ursæ Minoris....			14. 45. (6).		1	1	17. 25. 43·70	44·09	2	0·31	43·90	15·10
335	12 Libræ	2	0·40	14. 45. 55·49	+ 3·468	3		114. 2. 45·71		3	0·41	45·71	+ 15·05

CATALOGUE OF THE CONCLUDED MEAN R. A. AND MEAN N.P.D.—*continued.*

No.	Star's Name.	Number of Obs. of R. A.	Fraction of Year for Mean of Obs.	Mean R. A. 1855, Jan. 1.	Annual Variation in R. A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
336	B. A. C. 4923			14. 49. (0.)		1		110. 45. 31·17		1	0·42	31·17	+ 16·52
337	β Ursæ Minoris....	6	0·55	14. 51. 10·56	− 0·264	8	3	15. 15. 7·61	7·31	12	0·46	7·42	14·75
	β Ursæ Minoris S.P.					1		5·63					
338	40 Bootis	4	0·45	14. 54. 3·41	+ 2·300	4		50. 9. 27·16		4	0·45	27·16	14·52
339	20 Libræ	2	0·29	14. 55. 35·52	3·497	2		114. 42. 31·77		2	0·39	31·77	14·48
340	ψ Bootis	7	0·43	14. 58. 14·02	2·572	6		62. 29. 4·75		6	0·40	4·75	14·29
341	ν¹ Libræ	1	0·48	14. 58. 32·67	3·336	1		105. 41. 29·40		1	0·48	29·40	14·30
342	B. A. C. 4984	2	0·46	15. 1. 24·37	3·489	2		113. 25. 41·14		2	0·46	41·14	14·13
343	β Libræ	14	0·46	15. 9. 12·58	3·217	12		98. 50. 41·39		12	0·49	41·39	13·61
344	δ Bootis	1	0·46	15. 9. 39·45	2·421			56. 8.....					
345	B. A. C. 5048.....	2	0·43	15. 11. 54·57	2·690	2		68. 53. 40·22		2	0·43	40·22	13·34
346	σ² Libræ	2	0·34	15. 14. 56·91	3·334	1		104. 36. 47·12		1	0·39	47·12	13·22
347	ζ¹ Libræ.....	5	0·43	15. 20. 5·13	3·375	5		106. 12. 26·97		5	0·44	26·97	12·92
348	B. A. C. 5099	2	0·46	15. 21. 59·48	3·382	2		106. 45. 7·35		2	0·46	7·35	12·76
349	ν¹ Bootis	1	0·47	15. 25. 43·40	2·152	1		48. 40. 14·28		1	0·47	14·28	12·50
350	α Coronæ	16	0·46	15. 28. 33·02	2·537	14	1	62. 47. 40·68	41·63	15	0·47	40·74	12·38
351	40 Libræ	2	0·45	15. 29. 45·72	3·663	2		119. 17. 48·07		2	0·45	48·07	12·27
352	W. B. XV. 637	1	0·44	15. 33. 31·91	3·361	1		105. 5. 18·41		1	0·44	18·41	11·96
353	W. B. XV. 644	1	0·44	15. 33. 53·30	3·361	1		105. 5. 51·31		1	0·44	51·31	11·94
354	α Serpentis.....	11	0·47	15. 37. 7·71	2·950	11		83. 6. 54·53		11	0·49	54·53	11·65
355	π Coronæ			15. 38. (17.)		1	1	57. 1. 26·86	24·88	2	0·42	25·87	11·63
356	χ Lupi	3	0·42	15. 41. 45·31	3·790	4		123. 10. 51·84		4	0·43	51·84	11·44
357	ε Serpentis.....	6	0·44	15. 43. 35·43	2·989	3		85. 4. 57·54		3	0·50	57·54	11·19
358	*	1	0·45	15. 46. 35·39	3·684	1		118. 45. 25·64		1	0·45	25·64	11·03
359	ρ Scorpii	1	0·46	15. 47. 56·42	+ 3·690	1		118. 47. 11·62		1	0·46	11·62	10·95
360	ζ Ursæ Minoris....	2	0·47	15. 49. 20·22	− 2·320	2	2	11. 45. 43·19	41·85	4	0·47	42·52	10·82
361	γ Serpentis	2	0·44	15. 49. 45·51	+ 2·769	3		73. 51. 44·64		3	0·45	44·64	12·03
362	δ Scorpii.....	7	0·41	15. 51. 46·00	3·536	6		112. 12. 18·12		6	0·29	18·12	10·66
363	β¹ Scorpii.....	7	0·41	15. 57. 0·78	3·476	9		109. 24. 16·69		9	0·42	16·69	10·27
364	β² Scorpii.....	5	0·45	15. 57. 1·15	3·471	4		109. 24. 3·89		4	0·38	3·89	10·34
365	θ Lupi	1	0·47	15. 57. 4·96	3·922	1		126. 24. 17·01		1	0·47	17·01	10·33
366	ω¹ Scorpii.....	1	0·49	15. 58. 19·97	3·503	2		110. 16. 21·82		2	0·45	21·82	10·15
367	ω² Scorpii.....	1	0·49	15. 58. 54·58	3·509	1		110. 28. 24·01		1	0·49	24·01	10·13
368	B. A. C. 5347	1	0·49	15. 59. 17·80	3·643	2		115. 56. 2·38		2	0·48	2·38	10·15
369	c² Scorpii	1	0·42	16. 3. 22·81	3·690	1		117. 32. 41·23		1	0·42	41·23	9·78
370	Lalande 29490.....	1	0·51	16. 4. 14·14	3·348	1		103. 21. 32·18		1	0·51	32·18	9·70
371	Gr. Cat. 1850—1031	1	0·48	16. 4. 23·94	3·349	1		103. 19. 38·90		1	0·48	38·90	9·69
372	*	2	0·49	16. 5. 21·25	3·579	2		113. 23. 59·28		2	0·44	59·28	9·62
373	δ Ophiuchi.....	17	0·44	16. 6. 45·01	3·135	11		93. 19. 2·43		11	0·51	2·43	9·63
374	*	2	0·46	16. 12. 37·73	3·586	2		113. 21. 22·29		2	0·46	22·29	9·06
375	γ Herculis	5	0·45	16. 15. 31·49	2·645	8	1	70. 30. 12·31	10·73	9	0·46	12·13	8·78
376	23 Herculis			16. 17. (22.)		1	1	57. 19. 34·39	34·09	2	0·42	34·24	8·71
377	Antares	10	0·51	16. 20. 31·39	3·666	11		116. 6. 20·26		11	0·33	20·26	8·46
378	B. A. C. 5508 .. / α Normæ	2	0·46	16. 21. 55·00	3·900	2		124. 23. 2·82		2	0·46	2·82	8·41
379	η Draconis	1	0·96	16. 22. 2·24	0·821	1		28. 9. 24·60		1	0·96	24·60	8·23
380	ω Ophiuchi.....	1	0·51	16. 23. 32·86	3·547	1		111. 9. 5·78		1	0·51	5·78	8·12
381	λ Ophiuchi.....	1	0·45	16. 23. 36·27	3·027	1		87. 41. 42·28		1	0·45	42·28	8·25
382	*	1	0·39	16. 29. 0·91	3·563	1		111. 45. 21·94		1	0·49	21·94	7·76
383	ζ Ophiuchi.....	4	0·47	16. 29. 10·71	3·299	5		100. 16. 10·76		5	0·48	10·76	7·71
384	σ Herculis	1	0·53	16. 29. 25·92	+ 1·932	2		47. 15. 42·08		2	0·52	42·08	+ 7·68

346, 374. Of the 7–8th magnitude.

371. Of the 8–9th magnitude.

372. Of the 8½ magnitude.

CATALOGUE OF THE CONCLUDED MEAN R. A. AND MEAN N. P. D.—*continued.*

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1855, Jan. 1.	Annual Variation in R. A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s.	s.			° ′ ″	″			″	″
385	*	1	0·44	16. 30. 47·29	+ 3·888	1		123. 27. 3·53		1	0·44	3·53	+ 7·61
386	m^1 Herculis	1	0·47	16. 33. 23·49	2·977	1		85. 30. 21·69		1	0·47	21·69	7·39
387	m^2 Herculis	2	0·48	16. 33. 26·94	2·978	2		85. 29. 37·58		2	0·48	37·58	7·43
388	ζ Herculis	7	0·50	16. 35. 49·28	2·265	7	1	58. 7. 54·85	56·04	8	0·44	55·00	6·77
389	*g* Draconis			16. 39. (55.)		1	1	25. 8. 8·71	8·72	2	0·44	8·72	6·92
390	ε Scorpii	2	0·48	16. 40. 46·80	3·876	2		124. 1. 29·03		2	0·48	29·03	7·09
391	W. B. XVI. 790	1	0·51	16. 41. 11·99	2·754	1		75. 54. 23·59		1	0·51	23·59	6·76
392	B. A. C. 5634	2	0·48	16. 41. 17·10	2·817	2		78. 36. 31·29		2	0·48	31·29	6·75
393	21 Ophiuchi	3	0·48	16. 44. 3·88	3·042	3		88. 31. 59·88		3	0·48	59·88	6·52
394	κ Ophiuchi	7	0·50	16. 50. 48·40	2·838	7		80. 23. 46·19		7	0·52	46·19	5·94
395	B. A. C. 5709	1	0·51	16. 51. 5·34	3·662	1		114. 52. 3·34		1	0·51	3·34	6·11
396	26 Ophiuchi	2	0·51	16. 51. 16·82	3·660	2		114. 45. 47·15		2	0·51	47·15	6·07
397	Gr. Cat. 1850—1085	1	0·47	16. 51. 22·70	3·358	1		102. 40. 2·81		1	0·47	2·81	5·92
398	B. A. C. 5735 .. / *k* Scorpii	3	0·47	16. 55. 17·38	3·927	3		123. 54. 47·63		3	0·47	47·63	5·64
399	B. A. C. 5748	2	0·48	16. 56. 31·52	+ 3·316	2		100. 52. 50·84		2	0·48	50·84	5·62
400	ε Ursæ Minoris	4	0·50	17. 0. 59·24	− 6·506	5	5	7. 43. 53·80	52·99	10	0·50	53·39	5·11
401	η Ophiuchi	8	0·48	17. 2. 3·93	+ 3·435	5		105. 32. 28·30		5	0·51	28·30	4·90
402	A^1 Ophiuchi	1	0·55	17. 6. 26·04	3·683	1		116. 23. 9·78		1	0·55	9·78	5·78
403	*u* Scorpii ..... / B. A. C. 5817 ..	1	0·47	17. 7. 38·05	3·895	1		122. 29. 39·43		1	0·47	39·43	4·44
404	α Herculis	6	0·44	17. 8. 2·32	2·731	5		75. 26. 28·53		5	0·52	28·53	4·46
405	W. B. XVII. 127 ..	1	0·49	17. 8. 16·16	3·096	1		91. 7. 29·64		1	0·49	29·64	4·49
406	θ Ophiuchi	4	0·39	17. 13. 6·49	3·680	3		114. 50. 59·23		3	0·40	59·23	4·12
407	43 Ophiuchi	3	0·51	17. 14. 14·30	3·770	3		117. 59. 48·81		3	0·51	48·81	3·98
408	*d* Ophiuchi	1	0·41	17. 18. 5·98	3·819	1		119. 43. 49·43		1	0·41	49·43	3·84
409	σ Ophiuchi	7	0·53	17. 19. 19·32	2·977	8		85. 43. 47·56		8	0·57	47·56	3·52
410	B. A. C. 5925	2	0·49	17. 25. 14·31	3·912	2		122. 28. 35·14		2	0·49	35·14	3·03
411	β Draconis	1	0·60	17. 27. 9·58	1·350	1		37. 35. 23·51		1	0·60	23·51	2·86
412	α Ophiuchi	12	0·52	17. 28. 12·32	2·779	15	2	77. 19. 51·44	52·22	17	0·55	51·53	2·98
413	β Ophiuchi	5	0·53	17. 36. 18·67	+ 2·964	4		85. 22. 5·88		4	0·51	5·88	1·90
414	ω Draconis	1	0·60	17. 37. 48·09	− 0·361	3	2	21. 10. 30·96	31·55	5	0·52	31·20	1·66
415	μ Herculis	6	0·60	17. 40. 47·18	+ 2·344	5	1	62. 11. 30·31	31·00	6	0·57	30·43	2·40
416	ψ^1 Draconis	2	0·63	17. 44. 31·78	− 1·095	4	2	17. 46. 53·34	53·16	6	0·59	53·28	1·61
417	ψ^2 Draconis	2	0·63	17. 44. 33·44	− 1·093	2		17. 46. 23·96		2	0·63	23·96	1·61
418	γ Draconis / γ Draconis S.P.	3	0·44	17. 53. 14·39	+ 1·392	1 / 2		38. 29. 33·00 / 32·03		3	0·44	32·52	0·63
419	B. A. C. 6127	4	0·51	17. 58. 54·05	3·795	4		118. 28. 5·98		4	0·51	5·98	+ 0·20
420	72 Ophiuchi	12	0·63	18. 0. 28·56	2·844	10		80. 27. 11·94		10	0·62	11·94	− 0·12
421	μ Sagittarii	18	0·58	18. 5. 5·52	3·584	15		111. 5. 31·58		15	0·69	31·58	0·44
422	B. A. C. 6194	3	0·55	18. 8. 58·63	3·759	3		117. 5. 24·34		3	0·55	24·34	0·73
423	*	1	0·47	18. 10. 41·19	3·361	1		102. 16. 5·74		1	0·47	5·74	0·93
424	δ Sagittarii	1	0·41	18. 11. 42·71	3·842	1		119. 53. 3·38		1	0·41	3·38	0·97
425	η Serpentis	7	0·56	18. 13. 48·44	3·102	6		92. 55. 57·51		6	0·60	57·51	0·56
426	ε Sagittarii	2	0·66	18. 14. 32·74	+ 3·987			124. 27.....					
427	37 Draconis	3	0·51	18. 16. 7·69	− 0·353	3		21. 17. 49·47		3	0·51	49·47	1·35
428	Lalande 33885	1	0·53	18. 16. 20·75	+ 3·639	1		113. 3. 10·99		1	0·53	10·99	1·43
429	38 Draconis	3	0·59	18. 17. 49·77	− 0·358	2		21. 18. 58·00		2	0·59	58·00	1·48
430	λ Sagittarii	4	0·53	18. 19. 1·34	+ 3·707	4		115. 29. 49·46		4	0·53	49·46	− 1·44

397. Of the 10th magnitude.

CATALOGUE OF THE CONCLUDED MEAN R.A. AND MEAN N.P.D.—*continued.*

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1855, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
431	δ Ursæ Minoris					16		3. 24. 1·77					
	δ Ursæ Minoris S.P.	13	0·45	18. 19. 6·60	−19·326	7		1·06		23	0·44	1·55	− 1·68
432	Groombridge 2563 .	1	0·57	18. 19. 41·64	+ 1·855	1		47. 36. 34·08		1	0·57	34·08	1·72
433	24 Sagittarii	3	0·57	18. 25. 1·96	3·668	3		114. 8. 7·34		3	0·57	7·34	2·19
434	25 Sagittarii	2	0·58	18. 25. 40·53	3·684	2		114. 19. 40·38		2	0·58	40·38	2·27
435	α Lyræ.....	16	0·59	18. 32. 1·80	2·030	20	1	51. 20. 56·32	55·71	21	0·55	56·29	3·08
436	*	1	0·58	18. 40. 35·85	3·605			112. 5.					
437	*	2	0·56	18. 43. 28·38	2·212			56. 48.					
438	β^1 Lyræ	17	0·63	18. 44. 43·65	2·212	15	1	56. 48. 10·59	10·69	16	0·64	10·60	3·86
439	β^2 Lyræ	6	0·63	18. 44. 45·49	2·213	3		56. 48. 50·21		3	0·65	50·21	3·89
440	Groombridge 2700 .	1	0·62	18. 48. 53·33	1·863	1		47. 14. 41·35		1	0·62	41·35	4·25
441	Groombridge 2701 .	4	0·64	18. 48. 57·61	1·865	4		47. 16. 35·42		4	0·64	35·42	4·25
442	o^1 Draconis.....	1	0·73	18. 49. 2·52	0·886	1		30. 46. 47·34		1	0·73	47·34	4·26
443	o^2 Draconis.....	2	0·70	18. 49. 3·49	0·886	1		30. 47. 17·80		1	0·73	17·80	4·26
444	ε Aquilæ	16	0·58	18. 53. 2·53	2·723	14	1	75. 7. 31·32	32·54	15	0·56	31·40	4·50
445	ζ Sagittarii	1	0·72	18. 53. 23·09	3·828	2		120. 4. 56·22		2	0·61	56·22	4·60
446	ζ Aquilæ	21	0·62	18. 58. 44·77	2·752	20		76. 20. 56·05		20	0·63	56·05	5·01
447	ω Aquilæ	12	0·63	19. 11. 0·63	2·818	14	6	78. 39. 45·82	46·52	20	0·63	46·03	6·18
448	κ Cygni	7	0·62	19. 13. 45·08	1·389	6		36. 53. 51·60		6	0·64	51·60	6·43
449	δ Aquilæ	12	0·62	19. 18. 11·18	+ 3·024	12		87. 10. 14·98		12	0·62	14·98	6·81
450	τ Draconis	3	0·70	19. 18. 18·90	− 1·099	3	1	16. 54. 54·84	53·28	4	0·69	54·45	6·80
451	B. A. C. 6656.....	6	0·62	19. 19. 21·61	− 1·894	5		46. 53. 32·52		5	0·61	32·52	6·80
452	π Draconis	2	0·61	19. 19. 54·92	+ 0·331	2		24. 33. 52·01		2	0·61	52·01	6·87
453	B. A. C. 6666.....	2	0·67	19. 20. 53·85	3·711	2		117. 16. 41·39		2	0·67	41·39	6·81
454	i^1 Cygni	5	0·63	19. 23. 53·03	1·465	4		37. 58. 24·76		4	0·62	24·76	7·14
455	i^2 Cygni	6	0·61	19. 26. 3·03	1·516	7		38. 34. 39·38		7	0·62	39·38	7·48
456	μ Aquilæ	5	0·67	19. 27. 0·35	2·934	4		82. 55. 31·60		4	0·65	31·60	7·34
457	h^2 Sagittarii.....	2	0·68	19. 27. 52·83	3·662	2		115. 11. 55·94		2	0·68	55·94	7·50
458	B. A. C. 6730	2	0·63	19. 32. 2·83	1·605	2		40. 5. 4·68		2	0·63	4·68	7·86
459	θ Cygni	5	0·64	19. 32. 33·20	+ 1·611	3		40. 6. 46·64		3	0·63	46·64	8·09
460	σ Draconis.....	7	0·68	19. 32. 38·05	− 0·109	7	1	20. 35. 9·57	8·68	8	0·69	9·46	6·06
461	14 Cygni	4	0·67	19. 34. 43·26	+ 1·954	5		47. 30. 53·87		5	0·68	53·87	8·12
462	c^1 Cygni.....	11	0·64	19. 37. 57·69	1·596	11		39. 48. 34·77		11	0·64	34·77	8·17
463	c^2 Cygni.....	11	0·64	19. 38. 0·41	1·602	10		39. 49. 1·93		10	0·63	1·93	8·16
464	γ Aquilæ	14	0·64	19. 39. 21·95	2·854	7		79. 44. 13·27		7	0·51	13·27	8·43
465	δ Cygni	2	0·71	19. 40. 26·64	1·876	2		45. 13. 15·64		2	0·71	15·64	8·51
466	α Aquilæ	23	0·57	19. 43. 42·48	2·928	17		81. 30. 41·82		17	0·52	41·82	9·15
467	*d* Cygni	3	0·67	19. 46. 59·39	1·504	3		37. 22. 42·38		3	0·66	42·38	8·98
468	*b* Sagittarii	1	0·72	19. 48. 2·63	3·695	1		117. 33. 1·08		1	0·72	1·08	9·11
469	β Aquilæ	20	0·62	19. 48. 11·39	+ 2·949	18		83. 57. 7·96		18	0·61	7·96	8·65
470	ε Draconis	2	0·72	19. 48. 38·76	− 0·167	5	2	20. 6. 5·50	4·96	7	0·70	5·35	9·15
471	*c* Sagittarii	11	0·64	19. 53. 44·17	+ 3·704	7		118. 6. 32·10		7	0·66	32·10	9·60
472	B. A. C. 6889	6	0·63	19. 56. 25·85	3·541	5		111. 43. 8·06		5	0·62	8·06	9·70
473	e^1 Cygni.....	7	0·71	19. 57. 15·42	1·701	7		40. 17. 50·24		7	0·71	50·24	9·81
474	e^2 Cygni.....	4	0·72	19. 57. 17·87	1·696	3		40. 18. 25·85		3	0·75	25·85	9·82
475	ρ Draconis	8	0·67	20. 2. 9·00	0·298	9	2	22. 32. 23·95	22·57	11	0·66	23·70	10·23
476	θ Aquilæ	15	0·63	20. 3. 49·31	3·103	11		91. 14. 53·97		11	0·63	53·97	10·34
477	B.A.C. 6947	4	0·64	20. 6. 14·32	+ 3·756	4		117. 27. 42·49		4	0·64	42·49	10·33
478	λ Ursæ Minoris....					15	2	1. 7. 27·84	28·39				
	λ Ursæ Minoris S.P.	12	0·64	20. 8. 31·76	−54·835	2	1	28·57	25·13	20	0·59	27·83	− 10·64

472. Of the 10th magnitude.

CATALOGUE OF THE CONCLUDED MEAN R. A. AND MEAN N. P. D.—*continued.*

No.	Star's Name.	Number of Obs. of R. A.	Fraction of Year for Mean of Obs.	Mean R. A. 1855, Jan. 1.	Annual Variation in R. A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
479	Groombridge 3088 .	4	0·69	20. 8. 50·05	+ 2·018	4		47. 3. 32·84		4	0·69	32·84	— 10·69
480	o^2 Cygni	2	0·74	20. 9. 4·03	1·890	2		43. 41. 47·53		2	0·74	47·53	10·76
481	Piazzi XX. 63	1	0·72	20. 9. 5·17	1·890	1		43. 43. 32·28		1	0·72	32·28	10·71
482	4 Capricorni	5	0·69	20. 9. 29·96	3·538	4		112. 15. 13·95		4	0·69	13·95	10·69
483	α^1 Capricorni.....	1	0·65	20. 9. 36·52	3·333			102. 57.					
484	α^2 Capricorni.....	7	0·67	20. 10. 0·73	3·334	4		102. 59. 26·97		4	0·67	26·97	10·78
485	β Capricorni	1	0·80	20. 12. 51·72	+ 3·379	1		105. 14. 8·48		1	0·80	8·48	11·03
486	κ^1 Cephei.....	2	0·74	20. 13. 41·54	— 1·870	2		12. 43. 38·71		2	0·74	38·71	11·06
487	κ^2 Cephei.....	2	0·74	20. 13. 43·41	— 1·870	2		12. 43. 43·37		2	0·74	43·37	11·05
488	π Capricorni	1	0·65	20. 19. 1·14	+ 3·445	1		108. 41. 0·58		1	0·65	0·58	11·48
489	ρ Capricorni	1	0·49	20. 20. 35·23	3·432	1		108. 17. 22·91		1	0·49	22·91	11·57
490	B. A. C. 7049	4	0·66	20. 21. 0·45	3·529	3		112. 52. 7·63		3	0·67	7·63	11·53
491	ω^1 Cygni	5	0·73	20. 22. 36·44	1·833	5		41. 5. 45·42		5	0·73	45·42	11·72
492	*	2	0·73	20. 23. 40·64	3·584	1		115. 21. 24·27		1	0·70	24·27	11·76
493	B. A. C. 7077	4	0·69	20. 24. 14·01	3·573	4		115. 25. 46·09		4	0·69	46·09	11·68
494	ϵ Delphini	11	0·68	20. 26. 17·11	2·868	8	1	79. 11. 12·67	12·87	9	0·68	12·69	11·95
495	θ Cephei	5	0·70	20. 27. 8·46	1·019	4	1	27. 29. 33·73	31·99	5	0·71	33·44	12·00
496	υ Capricorni	1	0·72	20. 31. 47·40	3·425	1		108. 38. 46·37		1	0·72	46·37	12·38
497	B. A. C. 7146	5	0·74	20. 32. 21·38	2·784	4	1	74. 40. 7·97	6·51	5	0·72	7·68	12·40
498	α Delphini.....	11	0·68	20. 32. 54·19	2·791	10	2	74. 35. 49·14	49·16	12	0·69	49·14	12·43
499	α Cygni	12	0·57	20. 36. 29·38	2·042	12	2	45. 14. 9·72	9·65	14	0·65	9·71	12·66
	α Cygni S.P.....					2		10·38					
500	ψ Capricorni	3	0·75	20. 37. 30·18	3·569	3		115. 47. 18·71		3	0·75	18·71	12·57
501	ϵ Aquarii.....	3	0·64	20. 39. 49·36	3·258	2		100. 1. 24·29		2	0·61	24·29	12·86
502	η Cephei.....	7	0·66	20. 42. 20·01	1·231	6	1	28. 43. 23·95	25·43	8	0·69	24·01	13·87
	η Cephei S.P.					1		22·39					
503	ω Capricorni	4	0·74	20. 43. 9·60	3·599	4		117. 27. 29·27		4	0·74	29·27	13·11
504	B. A. C. 7237	5	0·67	20. 44. 30·49	3·537	5		114. 19. 23·41		5	0·67	23·41	13·08
505	32 Vulpeculæ	11	0·72	20. 48. 22·87	2·557	11	3	62. 29. 30·61	31·86	14	0·67	30·88	13·48
506	20 Capricorni	5	0·71	20. 51. 21·45	3·425	5		109. 35. 38·95		5	0·71	38·95	13·59
507	ν Cygni	2	0·66	20. 51. 46·11	2·234	1		49. 23. 20·92		1	0·62	20·92	13·69
508	21 Capricorni	4	0·68	20. 52. 41·87	+ 3·389	3		108. 5. 35·44		3	0·66	35·44	13·75
509	B. A. C. 7299	4	0·74	20. 54. 1·16	— 2·437	4	1	9. 59. 39·48	39·12	5	0·62	39·41	13·81
510	f^1 Cygni	1	0·68	20. 54. 53·77	+ 2·032			43. 3.					
511	B. A. C. 7312	2	0·64	20. 56. 42·74	3·383	3		107. 44. 10·55		3	0·63	10·55	14·05
512	θ Capricorni	4	0·71	20. 57. 47·43	3·386	4		107. 48. 22·40		4	0·76	22·40	14·02
513	A Capricorni.....	5	0·70	20. 58. 38·30	+ 3·528	5		115. 34. 55·76		5	0·70	55·76	14·08
514	*	1	0·60	20. 58. 46·39	— 2·227	1	1	9. 58. 49·19	49·88	2	0·60	49·54	14·11
515	ξ Cygni	4	0·63	20. 59. 39·55	+ 2·180	3		46. 38. 56·59		3	0·76	56·59	14·18
	ξ Cygni S.P.....					1		59·72					
516	61 Cygni (1st Star)	9	0·75	21. 0. 23·99	2·673	10		51. 57. 40·26		10	0·75	40·26	17·45
517	61 Cygni (2d Star)	9	0·75	21. 0. 25·51	2·684	10		51. 57. 45·62		10	0·75	45·62	17·23
518	f^2 Cygni	3	0·78	21. 1. 36·57	2·063	3		42. 55. 57·87		3	0·78	57·87	14·29
519	*	2	0·66	21. 4. 48·63	3·368	2		107. 46. 15·47		2	0·66	15·47	14·48
520	ζ Cygni	12	0·75	21. 6. 46·03	2·548	13	2	60. 21. 56·57	57·14	15	0·71	56·67	14·53
521	ϕ Capricorni	7	0·73	21. 7. 22·30	3·427	7		111. 15. 2·51		7	0·73	2·51	14·70
522	α Equulei.....	7	0·66	21. 8. 34·48	3·005	6		85. 20. 57·71		6	0·64	57·71	14·62
523	W. B. XXI. 198 ...	4	0·65	21. 9. 31·67	2·998	4		85. 21. 1·81		4	0·65	1·81	14·76
524	ι Capricorni.....	8	0·68	21. 14. 10·05	3·356	7		107. 26. 57·43		7	0·69	57·43	15·09
525	α Cephei	10	0·47	21. 15. 6·90	+ 1·439	5	3	28. 1. 40·00	40·16	14	0·52	40·29	— 15·09
	α Cephei S.P.....					6		40·75					

CATALOGUE OF THE CONCLUDED MEAN R. A. AND MEAN N. P. D.—*continued.*

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1855, Jan. 1.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	″
526	ζ Capricorni.....	2	0·72	21. 18. 22·92	+ 3·442	2		113. 2. 13·00		2	0·72	13·00	− 15·33
527	β Aquarii.....	11	0·71	21. 23. 55·35	3·164	10		96. 12. 23·93		10	0·72	23·93	15·59
528	g^1 Cygni.....	3	0·67	21. 24. 5·95	2·206	3		44. 5. 50·54		3	0·67	50·54	15·70
529	g^2 Cygni.....	1	0·75	21. 24. 11·13	2·206	1		44. 5. 57·81		1	0·75	57·81	15·60
530	β^1 Cephei.....	6	0·48	21. 26. 43·91	0·804	2		20. 4. 35·82		4	0·63	35·10	15·73
	β^1 Cephei S.P.....					2		34·04					
531	β^2 Cephei.....	14	0·49	21. 26. 46·34	0·805	7	1	20. 4. 31·51	30·41	15	0·50	31·21	15·70
	β^2 Cephei S.P.....					7		30·93					
532	ξ Aquarii.....	12	0·75	21. 30. 1·80	3·202	7		98. 30. 7·59		7	0·67	7·59	15·90
533	γ Capricorni	3	0·72	21. 32. 3·14	3·340	4		107. 18. 52·18		4	0·72	52·18	16·03
534	75 Cygni (1st Star).	1	0·82	21. 34. 25·29	2·341	2	1	47. 23. 11·23	9·22	3	0·76	10·56	16·14
535	75 Cygni (2d Star).	9	0·75	21. 34. 29·89	2·348	10		47. 22. 58·32		10	0·75	58·32	16·18
536	44 Capricorni	4	0·69	21. 35. 9·46	3·286	4		105. 3. 37·13		4	0·69	37·13	16·21
537	π^1 Cygni.....	5	0·79	21. 36. 57·00	2·122	5		39. 28. 14·95		5	0·79	14·95	16·26
538	ε Pegasi	14	0·73	21. 37. 3·85	2·948	14	1	80. 47. 16·72	17·59	15	0·74	16·78	16·28
539	δ Capricorni.....	4	0·68	21. 39. 1·95	3·322	5		106. 46. 58·65		5	0·69	58·65	16·13
540	ν Cephei.....	5	0·55	21. 41. 15·85	1·731	5	2	29. 32. 50·34	51·13	9	0·57	50·18	16·47
	ν Cephei S.P.....					2		48·08					
541	B. A. C. 7610.....	2	0·80	21. 44. 26·74	1·095	2		20. 31. 17·68		2	0·80	17·68	16·65
542	16 Pegasi.....	7	0·73	21. 46. 28·03	2·730	7		64. 45. 20·18		7	0·65	20·18	16·73
543	μ Cephei.....	6	0·52	21. 50. 0·95	2·007	3		34. 4. 27·58		6	0·52	26·69	16·87
	μ Cephei S.P.					3		24·94					
544	Rümker 9704	1	0·62	21. 51. 54·19	2·927	1		78. 29. 51·05		1	0·62	51·05	17·00
545	α Aquarii.....	16	0·72	21. 58. 20·10	3·082	13		91. 1. 20·82		13	0·73	20·82	17·28
546	18 Cephei	2	0·79	21. 59. 32·36	1·770	2		27. 35. 5·31		2	0·79	5·31	17·35
547	ξ^1 Cephei.....	3	0·47	21. 59. 34·64	1·738	1		26. 4. 38·57		3	0·47	36·66	17·43
	ξ^1 Cephei S.P.....					2		35·24					
548	ξ^2 Cephei.....	3	0·47	21. 59. 35·55	1·701	1		26. 4. 40·77		3	0·47	39·23	17·35
	ξ^2 Cephei S.P.....					2		38·08					
549	ι Pegasi	1	0·65	22. 0. 15·88	2·788	3	1	65. 21. 41·71	41·39	4	0·74	41·63	17·43
550	e^2 Aquarii	5	0·79	22. 2. 52·15	3·221	5		102. 16. 35·77		5	0·79	35·77	17·53
551	B. A. C. 7737.....	2	0·78	22. 3. 45·46	2·478	2		47. 31. 28·10		2	0·78	28·10	17·52
552	ζ Cephei.....	5	0·63	22. 5. 49·69	2·071	3		32. 30. 45·91		5	0·63	45·46	17·61
	ζ Cephei S.P.					2		44·44					
553	θ Aquarii.....	6	0·77	22. 9. 10·75	3·175	2		98. 30. 12·81		2	0·79	12·81	17·76
554	ε Cephei S.P.....	3	0·28	22. 9. 42·20	2·197	3		33. 40. 41·54		3	0·28	41·54	17·82
555	45 Aquarii.....	3	0·82	22. 11. 13·58	3·232	3		104. 1. 44·62		3	0·82	44·62	17·89
556	γ Aquarii.....	3	0·83	22. 14. 9·98	3·106	3		92. 6. 58·52		3	0·92	58·52	18·00
557	B. A. C. 7803.....	1	0·87	22. 15. 51·15	2·524	1		46. 59. 3·27		1	0·87	3·27	18·02
558	50 Aquarii.....	4	0·86	22. 16. 40·80	3·222	4		104. 15. 46·60		4	0·86	46·60	18·09
559	26 Cephei	4	0·74	22. 22. 25·68	1·915	4	3	25. 36. 22·09	23·01	7	0·68	22·48	18·23
560	β Piscis Australis ..	1	0·90	22. 23. 15·19	3·436	1		123. 5. 18·03		1	0·90	18·03	18·27
561	58 Aquarii.....	4	0·81	22. 23. 59·87	3·188	4		101. 38. 49·03		4	0·81	49·03	18·33
562	η Aquarii.....	6	0·76	22. 27. 54·24	3·087	8		90. 51. 48·51		8	0·80	48·51	18·41
563	11 Lacertæ	4	0·58	22. 34. 9·78	2·616	2		46. 28. 46·96		2	0·87	46·96	18·69
	11 Lacertæ S.P. ...					2		43·59					
564	ζ Pegasi.....	7	0·81	22. 34. 13·90	2·987	5		79. 55. 27·92		5	0·83	27·92	18·67
565	67 Aquarii.....	5	0·83	22. 35. 39·76	3·136	5		97. 43. 13·83		5	0·83	13·83	18·76
566	70 Aquarii.....	5	0·86	22. 40. 52·23	3·168	5		101. 19. 11·81		5	0·86	11·81	18·91
567	μ Pegasi.....	2	0·87	22. 43. 0·57	+ 2·888	6	5	66. 9. 47·06	46·31	11	0·85	46·73	− 18·92

CATALOGUE OF THE CONCLUDED MEAN R. A. AND MEAN N. P. D.—*concluded.*

No.	Star's Name.	Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Mean R.A. 1855, Jan. 1.	Annual Variation in R. A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1855, Jan. 1. D.	Mean N.P.D. 1855, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
				h m s	s			° ′ ″	″			″	′
568	λ Aquarii.....	2	0·82	22. 45. 2·79	+ 3·133	3		98. 20. 59·34		3	0·85	59·34	− 19·06
569	15 Lacertæ.....	1	0·29	22. 45. 30·08	2·694	1	1	47. 27. 25·97	27·32	2	0·82	26·65	19·02
	15 Lacertæ S.P. ...					3		24·79					
570	74 Aquarii.....	3	0·78	22. 45. 50·43	3·168	3		102. 23. 11·67		3	0·78	11·67	19·05
571	δ Aquarii	2	0·65	22. 46. 57·00	3·194	2		106. 35. 27·30		2	0·65	27·30	19·07
572	Fomalhaut.....	7	0·81	22. 49. 37·77	3·332	7		120. 23. 21·21		7	0·83	21·21	18·95
573	81 Aquarii.....	4	0·79	22. 53. 51·40	3·125	4		97. 50. 19·59		4	0·79	19·59	19·29
574	82 Aquarii.....	4	0·88	22. 55. 0·77	3·120	4		97. 21. 5·36		4	0·88	5·36	19·27
575	ο Andromedæ.....	2	0·55	22. 55. 15·44	2·746	1		48. 27. 8·44		1	0·80	8·44	19·29
	ο Andromedæ S.P. .					1		4·21					
576	α Pegasi.....	9	0·78	22. 57. 32·42	2·983	11	1	75. 34. 26·71	27·77	12	0·79	26·80	19·30
577	B. A. C. 8094	3	0·82	23. 8. 6·02	3·093	3		94. 17. 10·46		3	0·82	10·46	19·55
578	ψ^1 Aquarii.....	2	0·65	23. 8. 17·50	3·151	1		99. 52. 37·46		1	0·73	37·46	19·55
579	χ^1 Aquarii.....	1	0·96	23. 9. 19·84	3·115	1		98. 31. 0·05		1	0·96	0·05	19·60
580	γ Piscium.....	8	0·69	23. 9. 38·92	3·110	3		87. 30. 34·04		3	0·82	34·04	19·61
581	*	1	0·73	23. 11. 14·64	3·103	1		96. 25. 14·58		1	0·73	14·58	19·60
582	υ Pegasi	1	0·79	23. 18. 8·81	2·986	1	1	67. 23. 38·29	34·89	2	0·79	36·59	19·79
583	κ Piscium.....	11	0·74	23. 19. 29·94	3·079	6		89. 32. 15·75		6	0·79	15·75	19·64
584	16 Piscium.....	1	0·77	23. 28. 59·39	3·064	1		88. 42. 6·20		1	0·77	6·20	19·97
585	*	1	0·80	23. 29. 47·27	2·910	1		47. 29. 33·57		1	0·80	33·57	19·88
586	ι Andromedæ.....	4	0·67	23. 31. 2·27	2·919	3		47. 32. 4·37		3	0·80	4·37	19·94
	ι Andromedæ S.P...					1		11·98					
587	ι Piscium	14	0·68	23. 32. 29·55	3·084	6		85. 9. 32·99		6	0·73	32·99	19·46
588	γ Cephei.....	9	0·49	23. 33. 25·95	2·391	6	5	13. 10. 37·39	37·48	17	0·63	37·01	20·07
	γ Cephei S.P.					6		36·24					
589	19 Piscium.....	4	0·88	23. 38. 58·96	3·067	3		87. 19. 2·94		3	0·89	2·94	19·99
590	δ Sculptoris	3	0·85	23. 41. 21·96	3·140	2		118. 55. 56·56		2	0·95	56·56	19·89
591	21 Piscium.....	3	0·83	23. 42. 1·99	3·073	3		89. 43. 42·73		3	0·83	42·73	19·91
592	22 Piscium.....	5	0·85	23. 44. 32·54	3·071	5		87. 52. 32·22		5	0·85	32·22	20·03
593	B. A. C. 8314	1	0·77	23. 47. 49·46	2·856	3	2	16. 23. 46·81	47·38	5	0·77	47·04	20·14
594	W. B. XXIII. 1032.	1	0·96	23. 50. 22·64	3·066	1		85. 24. 8·53		1	0·96	8·53	20·04
595	ω Piscium.....	6	0·68	23. 51. 52·06	3·080	4		83. 56. 22·77		4	0·67	22·77	19·96
596	30 Piscium.....	2	0·66	23. 54. 31·35	3·082	2		96. 49. 11·95		2	0·66	11·95	20·03
597	Groombridge 4207 .	1	0·75	23. 55. 42·93	3·048	1	1	48. 3. 33·41	33·60	2	0·75	33·51	20·05
598	2 Ceti.....	2	0·74	23. 56. 18·55	3·082	1		108. 8. 35·39		1	0·82	35·39	20·07
599	33 Piscium.....	2	0·66	23. 57. 54·73	+ 3·076	2		96. 31. 7·64		2	0·66	7·64	20·10
600	B. A. C. 8374.....			23. 59. (5.)		1	1	61. 46. 43·38	43·13	2	0·66	43·26	− 19·89

NEW CONSTANTS FOR STARS IN THE CATALOGUE NOT PREVIOUSLY OBSERVED.

No. in Star-Catalogue for 1855.	Star's Name.	Logarithms of				Value of	Logarithms of				Value of
		e	f	g	h	l	e′	f′	g′	h′	l′
						s					″
9	B. A. C. 152	0·11107	0·08332	1·45071	0·10145	81·973	9·98767	9·71179	0·70778	0·12209	133·588
15	60 Piscium	0·10245	0·08334	1·44863	0·08164	84·176	9·89547	0·04075	0·71966	0·13739	122·293
28	ρ Piscium	0·10251	0·08760	1·45055	0·08668	83·372	9·95117	9·95554	0·78521	0·18597	119·411
29	94 Piscium	0·10250	0·08765	1·45057	0·08670	83·365	9·95179	9·95508	0·78614	0·18647	119·343
34	101 Piscium	0·10165	0·08837	1·45016	0·08469	83·549	9·93873	9·99001	0·80593	0·19692	116·840
35	B. A. C. 477	0·10194	0·08849	1·45056	0·08584	83·409	9·95011	9·97034	0·80622	0·19697	117·337
38	105 Piscium	0·10168	0·08883	1·45050	0·08536	83·441	9·94794	9·97847	0·81453	0·20116	116·476
40	109 Piscium	0·10190	0·08954	1·45122	0·08683	83·216	9·96666	9·95328	0·82648	0·20675	116·106
44	B. A. C. 607	0·10137	0·09103	1·45181	0·08702	83·089	9·98009	9·95073	0·86107	0·22185	113·419
47	B. A. C. 632	0·10080	0·09123	1·45140	0·08582	83·233	9·96928	9·97139	0·87139	0·22604	112·306
52	B. A. C. 777	0·13864	0·12314	1·48446	0·13596	71·599	0·21115	9·63310	0·94304	0·25221	103·397
55	B. A. C. 814	0·12564	0·11589	1·47751	0·12218	74·813	0·20388	9·67537	0·96354	0·25902	101·759
69	W. B. III. 139	0·09575	0·09697	1·45182	0·08305	83·348	9·97594	0·01848	1·05518	0·28619	98·315
77	Rümker 858	0·09481	0·09765	1·45166	0·08253	83·414	9·97192	0·02674	1·08151	0·29319	96·395
89	W. B. III. 767	0·09300	0·09885	1·45134	0·08170	83·541	9·96393	0·04032	1·13139	0·30544	92·812
94	ω^1 Tauri	0·09172	0·10080	1·45446	0·08335	83·130	0·03157	0·01538	1·17623	0·31534	87·533
95	W. B. IV. 21	0·09099	0·09987	1·45067	0·08078	83·726	9·94463	0·05594	1·18042	0·31619	89·600
97	46 Tauri	0·09069	0·10003	1·45058	0·08067	83·750	9·94526	0·05648	1·18726	0·31761	89·074
99	φ Tauri	0·09139	0·10262	1·45752	0·08476	82·682	0·08525	9·99671	1·19940	0·31998	83·545
101	χ^1 Tauri	0·09098	0·10240	1·45690	0·08426	82·811	0·07526	0·00373	1·20437	0·32096	83·496
102	χ^2 Tauri										
105	κ^1 Tauri	0·09039	0·10197	1·45569	0·08340	83·040	0·05450	0·01570	1·21064	0·32216	83·754
111	Lalande 8845	0·08802	0·10137	1·45141	0·08063	83·780	9·96520	0·05717	1·24740	0·32857	83·923
115	B. A. C. 1526	0·08683	0·10255	1·45420	0·08142	83·505	0·02605	0·04570	1·27560	0·33282	79·249
132	* R. A. 5h. 25m. (55s.) .. N. P. D. 63°. 8′	0·08318	0·10514	1·45849	0·08099	83·261	0·10037	0·05417	1·34285	0·34025	69·027
134	121 Tauri	0·08303	0·10453	1·45724	0·08076	83·432	0·08088	0·05711	1·34362	0·34030	70·164
147	* R. A. 5h. 59m. (28s.) ... N. P. D. 64°. 1′	0·07924	0·10522	1·45822	0·07922	83·672	0·09618	0·07884	1·39718	0·34242	63·880
148	* R. A. 5h. 59m. (40s.) .. N. P. D. 63°. 55′	0·07922	0·10521	1·45826	0·07922	83·668	0·09691	0·07895	1·39744	0·34242	63·801
153	W. B. VI. 348	0·07796	0·10336	1·44296	0·07948	85·068	9·72665	0·07478	1·41470	0·34220	80·829
164	* R. A. 6h. 29m. (26s.) .. N. P. D. 65°. 26′	0·07577	0·10473	1·45753	0·07777	84·102	0·08547	0·09809	1·44051	0·34079	60·434
168	28 Geminorum	0·07493	0·10565	1·45949	0·07712	83·981	0·11454	0·10536	1·44829	0·34007	57·200
172	*d* Geminorum	0·07435	0·10402	1·45637	0·07738	84·370	0·06615	0·10345	1·45792	0·33903	60·148
173	37 Geminorum	0·07381	0·10463	1·45785	0·07687	84·281	0·09032	0·10929	1·46249	0·33844	57·762
180	48 Geminorum	0·07189	0·10395	1·45717	0·07619	84·561	0·07984	0·11813	1·48389	0·33487	56·524
181	53 Geminorum	0·07127	0·10464	1·45872	0·07547	84·480	0·10363	0·12553	1·48777	0·33407	54·038
188	b^1 Geminorum	0·06970	0·10423	1·45864	0·07470	84·675	0·10230	0·13442	1·50322	0·33036	52·568
189	b^2 Geminorum	0·06966	0·10416	1·45855	0·07471	84·689	0·10044	0·13439	1·50378	0·33023	52·671
196	ω^1 Cancri	0·06643	0·10223	1·45700	0·07368	85·241	0·07689	0·14739	1·53660	0·31875	51·690
200	W. B. VIII. 262	0·06578	0·09932	1·45119	0·07697	85·727	9·96023	0·11056	1·55403	0·31010	60·909
201	χ Cancri	0·06419	0·10153	1·45729	0·07228	85·514	0·08164	0·16177	1·55442	0·30989	49·502
217	B. A. C. 3138	0·05997	0·09680	1·45395	0·07212	86·410	0·02337	0·16716	1·59650	0·27677	52·208
218	π^2 Cancri	0·06054	0·09602	1·45218	0·07426	86·421	9·98489	0·14468	1·59775	0·27539	56·312
225	42 Lyncis	0·05318	0·09830	1·45910	0·06232	86·998	0·10483	0·23495	1·61126	0·25824	40·895
235	* R. A. 10h. 4m. (32s.)... N. P. D. 70°. 37′	0·05617	0·09135	1·45175	0·07168	87·253	9·97809	0·17336	1·62902	0·22607	55·817
238	B. A. C. 3506	0·05610	0·09095	1·45148	0·07200	87·285	9·97179	0·17027	1·63056	0·22249	56·586
242	B. A. C. 3531	0·02188	0·10536	1·46894	0·02701	89·912	0·15747	0·30498	1·63264	0·21726	30·887
247	B. A. C. 3645	0·01116	0·10419	1·46842	0·01593	91·351	0·14609	0·31505	1·63914	0·19821	32·625
269	89 Leonis	0·05457	0·08266	1·44846	0·07756	87·823	9·89028	0·10283	1·65169	0·12867	71·470
272	3 Draconis	0·01129	0·08626	1·45387	0·01683	93·737	0·05649	0·32603	1·65249	0·11825	41·830

NEW CONSTANTS FOR STARS IN THE CATALOGUE NOT PREVIOUSLY OBSERVED.

No. in Star-Catalogue for 1855.	Star's Name.	Logarithms of e	f	g	h	Value of l	Logarithms of e′	f′	g′	h′	Value of l′
						′					″
283	* R. A. 11h. 58m. (9s.) ... N. P. D. 95°. 10′	0·05426	0·07938	1·44823	0·08136	87·825	9·88480	0·04530	1·65374	0·08207	78·811
284	W. B. XI. 1013	0·05426	0·07921	1·44825	0·08140	87·833	9·88514	0·04450	1·65374	0·07945	79·029
293	*f* Virginis	0·05446	0·07610	1·44848	0·08128	88·025	9·89137	0·04667	1·65218	0·03080	81·987
294	χ Virginis	0·05439	0·07584	1·44862	0·08217	87·975	9·89569	0·03197	1·65191	0·02651	83·016
298	28 Virginis	0·05447	0·07556	1·44862	0·08196	88·002	9·89558	0·03546	1·65160	0·02171	83·135
305	8 Draconis	0·01633	0·06615	1·43806	0·02201	95·726	9·91859	0·32100	1·64922	9·99377	58·771
306	*k* Virginis	0·05497	0·07372	1·44851	0·08041	88·212	9·89120	0·06032	1·64878	9·98914	83·980
310	B. A. C. 4527	9·93552	0·02830	1·40577	9·93842	109·525	9·88142	0·32530	1·64016	9·92147	64·834
311	B. A. C. 4531	0·05559	0·06995	1·44994	0·08411	88·059	9·93238	9·99990	1·63987	9·91939	90·478
315	83 Virginis	0·05572	0·06884	1·45057	0·08522	87·999	9·94955	9·98102	1·63655	9·89850	92·054
322	B. A. C. 4700	0·05708	0·06621	1·45118	0·08493	88·059	9·96335	9·98623	1·62582	9·83883	94·854
324	B. A. C. 4722	0·05712	0·06565	1·45167	0·08560	88·008	9·97520	9·97518	1·62376	9·82818	95·486
333	B. A. C. 4896	0·05966	0·06236	1·45241	0·08479	88·060	9·99042	9·98973	1·60402	9·73764	99·248
334	6 Ursæ Minoris	0·01389	0·02243	1·40240	0·01711	101·548	9·64416	0·28265	1·60286	9·73269	89·457
335	12 Libræ	0·05893	0·06134	1·45431	0·08717	87·859	0·03056	9·95166	1·60251	9·73123	99·296
338	40 Bootis	0·05574	0·05700	1·43621	0·06431	91·317	9·62948	0·22146	1·59720	9·70939	97·448
342	B. A. C. 4984	0·06028	0·06011	1·45457	0·08647	87·881	0·03507	9·96402	1·59232	9·68970	100·714
349	ν^1 Bootis	0·05866	0·05331	1·43379	0·06572	91·455	9·55391	0·20744	1·57423	9·62175	105·258
355	π Coronæ	0·06215	0·05510	1·43717	0·06999	90·564	9·59392	0·18072	1·56397	9·58622	108·673
358	* R. A. 15h. 46m. (35s.) .. N. P. D. 118°. 45′	0·06378	0·05556	1·45763	0·08639	87·711	0·08682	9·97113	1·55655	9·56181	103·737
368	B. A. C. 5347	0·06545	0·05537	1·45684	0·08505	87·770	0·07456	9·99112	1·54535	9·52663	105·294
372	* R. A. 16h. 5m. (21s.) ... N. P. D. 113°. 24′	0·06639	0·05548	1·45604	0·08416	87·823	0·06074	0·00410	1·53934	9·50866	106·400
374	* R. A. 16h. 12m. (38s.) . N. P. D. 113°. 21′	0·06715	0·05507	1·45615	0·08375	87·820	0·06273	0·00902	1·53215	9·48816	107·034
376	23 Herculis	0·06657	0·05255	1·43613	0·07242	90·349	9·54192	0·15661	1·52759	9·47544	117·531
382	* R. A. 16h. 29m. (0s.) .. N. P. D. 111°. 45′	0·06903	0·05454	1·45580	0·08289	87·816	0·05633	0·02394	1·51528	9·44382	108·868
385	* R. A. 16h. 30m. (47s.) . N. P. D. 123°. 27′	0·06807	0·05156	1·46072	0·08519	87·523	0·12963	9·99604	1·51331	9·43880	104·537
395	B. A. C. 5709	0·07120	0·05302	1·45730	0·08249	87·676	0·08196	0·03139	1·49087	9·38957	109·645
396	26 Ophiuchi	0·07123	0·05303	1·45726	0·08247	87·678	0·08128	0·03172	1·49066	9·38918	109·696
407	43 Ophiuchi	0·07370	0·05154	1·45890	0·08174	87·528	0·10609	0·04387	1·46247	9·34254	110·118
410	B. A. C. 5925	0·07480	0·04996	1·46108	0·08152	87·397	0·13498	0·04849	1·44807	9·32568	108.971
419	B. A. C. 6127	0·07901	0·05083	1·45933	0·07926	87·348	0·11233	0·07811	1·40007	9·30103	112·547
422	B. A. C. 6194	0·08021	0·05121	1·45869	0·07872	87·328	0·10336	0·08537	1·38456	9·30253	113.745
423	* R. A. 18h. 10m. (41s.) . N. P. D. 102°. 16′	0·08032	0·05379	1·45272	0·07894	87·609	9·99476	0·08275	1·38142	9·30353	121·143
432	Groombridge 2563	0·08197	0·04534	1·42901	0·08107	89·700	9·31723	0·05774	1·36700	9·30893	143·226
433	24 Sagittarii	0·08202	0·05206	1·45737	0·07802	87·300	0·08300	0·09484	1·35870	9·31331	116·082
434	25 Sagittarii	0·08210	0·05203	1·45744	0·07798	87·294	0·08426	0·09535	1·35764	9·31427	116·013
436	* R. A. 18h. 40m. (36s.) .. N. P. D. 112°. 5′	0·08375	0·05276	1·45643	0·07745	87·249	0·06737	0·10256	1·33163	9·33398	118·000
437	* R. A. 18h. 43m. (28s.) . N. P. D. 56°. 48′	0·08459	0·04990	1·43474	0·08215	88·721	9·47640	0·04014	1·32667	9·33850	144·182
440	Groombridge 2700	0·08609	0·04582	1·42915	0·08388	89·176	9·33846	0·02367	1·31691	9·34784	147·687
441	Groombridge 2701	0·08609	0·04582	1·42915	0·08388	89·176	9·33846	0·02367	1·31691	9·34784	147·687
451	B. A. C. 6656	0·09023	0·04692	1·42965	0·08677	88·574	9·38050	9·98613	1·26022	9·41363	151·455
453	B. A. C 6666	0·08843	0·05292	1·45815	0·07488	86·949	0·09505	0·13287	1·25751	9·41688	116·695
461	14 Cygni	0·09210	0·04813	1·43055	0·08795	88·213	9·41724	9·96813	1·22936	9·45330	152·786
472	B. A. C. 6889	0·09161	0·05585	1·45540	0·07449	86·776	0·04949	0·13979	1·18372	9·51272	121·029
477	B. A. C. 6947	0·09316	0·05535	1·45733	0·07258	86·678	0·08224	0·15864	1·16216	9·54045	117·656

NEW CONSTANTS FOR STARS IN THE CATALOGUE NOT PREVIOUSLY OBSERVED.

No. in Star-Catalogue for 1855.	Star's Name.	Logarithms of				Value of	Logarithms of				Value of
		e	f	g	h	l	e′	f′	g′	h′	l′
						s					″
479	Groombridge 3088	0·09639	0·05036	1·43165	0·09096	87·467	9·48530	9·92264	1·15562	9·54893	155·416
482	4 Capricorni	0·09290	0·05656	1·45535	0·07387	86·684	0·04871	0·14690	1·15479	9·54989	120·965
490	B. A. C. 7049	0·09401	0·05728	1·45533	0·07327	86·601	0·04844	0·15352	1·12862	9·58282	120·746
492	* R. A. 20h. 23m. (40s.) N. P. D. 115°. 21′	0·09456	0·05702	1·45612	0·07242	86·573	0·06236	0·16171	1·12174	9·59120	119·226
493	B. A. C. 7077	0·09461	0·05700	1·45614	0·07238	86·573	0·06290	0·16210	1·12109	9·59186	119·166
504	B. A. C. 7237	0·09624	0·05874	1·45526	0·07195	86·439	0·04743	0·16753	1·07297	9·64928	120·003
506	20 Capricorni	0·09624	0·05996	1·45363	0·07330	86·397	0·01602	0·15471	1·05623	9·66822	123·057
508	21 Capricorni	0·09619	0·06023	1·45316	0·07376	86·387	0·00626	0·14996	1·05298	9·67198	124·023
511	B. A. C. 7312	0·09647	0·06061	1·45298	0·07377	86·356	0·00242	0·14990	1·04295	9·68309	124·257
513	A Capricorni	0·09757	0·05969	1·45526	0·07099	86·348	0·04778	0·17705	1·03823	9·68824	119·211
514	* R. A. 20h. 58m. (50s.) N. P. D. 9°. 59′	0·16748	9·96694	1·35551	0·16626	86·199	9·62818	9·70519	1·03706	9·68956	161·399
521	φ Capricorni	0·09765	0·06108	1·45373	0·07228	86·283	0·01874	0·16563	1·01654	9·71193	121·946
534,535	75 Cygni	0·10478	0·05927	1·43682	0·09668	85·480	9·67994	9·81649	0·94762	9·78265	155·859
536	44 Capricorni	0·09887	0·06413	1·45154	0·07391	86·052	9·97080	0·14916	0·94616	9·78412	125·572
550	e^2 Aquarii	0·10019	0·06690	1·45046	0·07457	85·810	9·94468	0·14166	0·87608	9·85118	126·580
551	B. A. C. 7737	0·10685	0·06298	1·43895	0·09804	84·824	9·74144	9·78558	0·87375	9·85338	154·147
555	45 Aquarii	0·10075	0·06763	1·45062	0·07378	85·761	9·94949	0·15102	0·85565	9·87038	125·193
557	B. A. C. 7803	0·10785	0·06443	1·43968	0·09893	84·533	9·76545	9·76912	0·84426	9·88096	153·351
558	50 Aquarii	0·10102	0·06817	1·45055	0·07362	85·723	9·94808	0·15290	0·84244	9·88263	124·838
559	26 Cephei	0·12720	0·05548	1·43004	0·12271	82·622	9·80573	9·57873	0·82866	9·89563	156·792
561	58 Aquarii	0·10112	0·06902	1·45000	0·07460	85·635	9·93322	0·14136	0·82539	9·89881	126·114
563	11 Lacertæ	0·10908	0·06680	1·44100	0·09998	84·106	9·80130	9·74794	0·80212	9·92081	151·745
565	67 Aquarii	0·10132	0·07030	1·44926	0·07611	85·486	9·91307	0·12244	0·79917	9·92385	127·857
566	70 Aquarii	0·10174	0·07074	1·44966	0·07460	85·498	9·92497	0·14147	0·78799	9·93473	125·464
569	15 Lacertæ	0·10913	0·06857	1·44213	0·09961	83·924	9·82198	9·74806	0·77832	9·94436	150·214
570	74 Aquarii	0·10199	0·07123	1·44970	0·07412	85·477	9·92674	0·14727	0·77769	9·94494	124·574
573	81 Aquarii	0·10192	0·07217	1·44907	0·07597	85·340	9·90803	0·12422	0·76210	9·96109	126·696
574	82 Aquarii	0·10193	0·07229	1·44901	0·07617	85·323	9·90619	0·12163	0·75977	9·96338	126·897
577	B. A. C. 8094	0·10214	0·07369	1·44860	0·07740	85·159	9·89448	0·10491	0·73728	9·98875	127·648
581	* R. A. 23h. 11m. (15s.) N. P. D. 96°. 25′	0·10229	0·07404	1·44874	0·07652	85·174	9·89873	0·11694	0·73180	9·99562	126·255
589	19 Piscium	0·10259	0·07694	1·44816	0·08029	84·739	9·88206	0·06215	0·70148	0·04428	128·381
591	21 Piscium	0·10259	0·07726	1·44825	0·07929	84·779	9·88405	0·07766	0·69949	0·04945	126·941
592	22 Piscium	0·10263	0·07752	1·44820	0·08006	84·710	9·88297	0·06576	0·69829	0·05366	127·539
593	B. A. C. 8314	0·15698	0·07454	1·44444	0·15407	75·397	0·01090	9·38408	0·69668	0·05916	143·695

ROYAL OBSERVATORY, GREENWICH.

HORIZONTAL AND VERTICAL DIAMETERS

AND

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES

OF THE

SUN, MOON, AND PLANETS,

(The Right Ascensions of the Sun, Moon, and Planets corrected for Personal Equation ; and the North Polar Distances corrected for Discordance of Direct and Reflexion Results, and for Flexure of the Telescope of the Transit-Circle,)

DEDUCED FROM THE OBSERVATIONS,

AND

COMPARED WITH THE NAUTICAL ALMANAC:

WITH

THE INFERRED POSITION OF THE ECLIPTIC; THE GEOCENTRIC ERRORS OF THE SUN, MOON, AND PLANETS, IN LONGITUDE AND ECLIPTIC POLAR DISTANCE;

AND

THE EQUATIONS BETWEEN THE GEOCENTRIC ERRORS OF THE PLANETS AND THE HELIOCENTRIC ERRORS OF THE EARTH AND PLANETS, IN LONGITUDE AND ECLIPTIC POLAR DISTANCE.

1855.

SIDEREAL TIMES occupied by the TRANSIT of the SUN'S DIAMETER; and VERTICAL DIAMETERS of the SUN, corrected for Refraction and Parallax: compared with those of the Nautical Almanac.

DAY.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1855.	m s	s	s	′ ″	″	″
Jan. 5	2. 21·42	21·76	+ 0·34	32. 27·95	36·40	(+8·45)
27	2. 17·64	17·72	+ 0·08	32. 34·83	33·00	− 1·83
Feb. 10				32. 29·28	28·60	− 0·68
12	2. 13·95	14·06	+ 0·11	32. 30·27	27·80	− 2·47
15	2. 13·14	13·42	+ 0·28	32. 23·75	26·60	+ 2·85
16	2. 13·31	13·22	− 0·09	32. 22·67	26·20	+ 3·53
20	2. 12·36	12·42	+ 0·06	32. 24·37	24·60	+ 0·23
21	2. 12·16	12·22	+ 0·06	32. 26·82	24·00	− 2·82
22	2. 12·22	12·04	− 0·18	32. 27·60	23·60	− 4·00
24	2. 11·60	11·68	+ 0·08	32. 24·09	22·80	− 1·29
Mar. 1	2. 11·03	10·88	− 0·15	32. 17·91	20·40	+ 2·49
5	2. 10·19	10·32	+ 0·13	32. 15·22	18·40	+ 3·18
6				32. 22·79	18·00	− 4·79
7				32. 17·78	17·40	− 0·38
8	2. 9·91	9·96	+ 0·05	32. 20·32	17·00	− 3·32
9	2. 9·80	9·84	+ 0·04	32. 13·03	16·40	+ 3·37
April 2	2. 8·99	9·00	+ 0·01	32. 0·58	3·40	+ 2·82
5				31. 59·95	61·60	+ 1·65
7				31. 58·59	60·40	+ 1·81
10	2. 9·35	9·46	+ 0·11	31. 58·25	58·80	+ 0·55
11	2. 9·32	9·54	+ 0·22			
12	2. 9·43	9·62	+ 0·19	31. 56·73	57·80	+ 1·07
14	2. 9·83	9·82	− 0·01			
16	2. 9·90	10·02	+ 0·12	31. 55·08	55·60	+ 0·52
17	2. 10·10	10·12	+ 0·02	31. 56·31	55·00	− 1·31
18				31. 58·17	54·60	− 3·57
19	2. 10·46	10·36	− 0·10	31. 55·72	54·00	− 1·72
20	2. 10·47	10·48	+ 0·01			
23	2. 11·09	10·88	− 0·21	31. 55·24	52·00	− 3·24
24	2. 10·63	11·00	+ 0·37	31. 50·38	51·60	+ 1·22
26	2. 11·36	11·28	− 0·08	31. 52·51	50·60	− 1·91
27	2. 11·51	11·44	− 0·07	31. 51·80	50·00	− 1·80
28	2. 11·46	11·58	+ 0·12	31. 48·32	49·60	+ 1·28
May 2	2. 12·30	12·20	− 0·10	31. 47·56	47·60	+ 0·04
3	2. 12·23	12·36	+ 0·13	31. 45·61	47·20	+ 1·59
5	2. 12·72	12·68	− 0·04	31. 52·17	46·20	− 5·97
10				31. 41·41	44·00	+ 2·59
17	2. 14·52	14·64	+ 0·12	31. 39·89	41·20	+ 1·31
24	2. 15·60	15·72	+ 0·12	31. 38·56	38·80	+ 0·24
26	2. 15·98	16·00	+ 0·02	31. 42·93	38·20	− 4·73
June 8	2. 17·26	17·44	+ 0·18			
11	2. 17·77	17·64	− 0·13	31. 35·33	34·00	− 1·33
20	2. 17·94	17·94	0·00	31. 30·79	32·60	+ 1·81
21	2. 18·16	17·94	− 0·22	31. 35·51	32·60	− 2·91
22	2. 18·03	17·92	− 0·11	31. 35·27	32·40	− 2·87
27	2. 17·72	17·80	+ 0·08	31. 33·66	32·20	− 1·46
28	2. 17·43	17·76	+ 0·33	31. 27·98	32·00	+ 4·02
29	2. 17·69	17·70	+ 0·01	31. 29·39	32·00	+ 2·61
30	2. 17·71	17·64	− 0·07	31. 30·17	32·00	+ 1·83
July 3	2. 17·20	17·42	+ 0·22	31. 30·48	32·00	+ 1·52
5	2. 17·21	17·26	+ 0·05	31. 31·37	32·00	+ 0·63
10				31. 28·37	32·20	+ 3·83

DAY.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1855.	m s	s	s	′ ″	″	″
July 13				31. 30·02	32·40	+ 2·38
14	2. 16·27	16·22	− 0·05	31. 30·01	32·60	+ 2·59
18	2. 15·64	15·66	+ 0·02	31. 30·92	33·00	+ 2·08
20	2. 15·34	15·34	0·00	31. 30·82	33·40	+ 2·58
23	2. 14·25	14·88	(+0·63)	31. 32·48	33·80	+ 1·32
Aug. 1				31. 31·60	35·80	+ 4·20
2	2. 13·14	13·16	+ 0·02	31. 35·53	36·00	+ 0·47
3	2. 12·93	13·00	+ 0·07	31. 36·60	36·20	− 0·40
10	2. 11·69	11·80	+ 0·11	31. 37·26	38·20	+ 0·94
13				31. 39·14	39·20	+ 0·06
16	2. 10·72	10·84	+ 0·12	31. 38·07	40·40	+ 2·33
18	2. 10·39	10·54	+ 0·15	31. 38·92	41·20	+ 2·28
21	2. 10·10	10·10	0·00	31. 40·29	42·40	+ 2·11
22	2. 9·82	9·98	+ 0·16	31. 43.65	42·80	− 0·85
25				31. 43·30	44·00	+ 0·70
28	2. 9·07	9·24	+ 0·17	31. 44·38	45·20	+ 0·82
29	2. 9·06	9·14	+ 0·08	31. 42·86	45·80	+ 2·94
30	2. 8·90	9·04	+ 0·14	31. 44·65	46·20	+ 1·55
31	2. 8·71	8·94	+ 0·23	31. 43·73	46·60	+ 2·87
Sept. 5	2. 8·33	8·52	+ 0·19	31. 44·98	49·00	+ 4·02
8	2. 7·72	8·34	(+0·62)	31. 50·70	50·40	− 0·30
11	2. 8·08	8·20	+ 0·12	31. 51·47	51·80	+ 0·33
20	2. 8·13	8·12	− 0·01	31. 54·31	56·60	+ 2·29
21	2. 7·95	8·14	+ 0·19	31. 56·03	57·00	+ 0·97
22	2. 7·63	8·16	+ 0·53			
25	2. 8·39	8·28	− 0·11	31. 59·42	59·40	− 0·02
26	2. 8·32	8·34	+ 0·02	31. 59·58	60·00	+ 0·42
27	2. 8·24	8·40	+ 0·16	31. 59·78	60·60	+ 0·82
Oct. 2				31. 59·85	63·20	+ 3·35
4	2. 8·94	8·96	+ 0·02	32. 2·54	4·40	+ 1·86
5	2. 9·03	9·06	+ 0·03			
6	2. 9·07	9·18	+ 0·11	32. 3·34	5·40	+ 2·06
10				32. 5·17	7·60	+ 2·43
13	2. 9·98	10·10	+ 0·12	32. 9·11	9·20	+ 0·09
15				32. 1·31	10·40	(+9·09)
17	2. 10·62	10·76	+ 0·14	32. 9·49	11·40	+ 1·91
18	2. 11·03	10·94	− 0·09	32. 11·85	12·00	+ 0·15
20	2. 11·02	11·30	+ 0·28	32. 3·07	13·20	(+10·13)
Nov. 1				32. 18·03	19·40	+ 1·37
6	2. 14·78	14·98	+ 0·20	32. 21·61	21·80	+ 0·19
15	2. 16·98	17·12	+ 0·14	32. 21·97	25·80	+ 3·83
26	2. 19·55	19·58	+ 0·03	32. 28·87	30·20	+ 1·33
27	2. 19·54	19·78	+ 0·24	32. 27·11	30·40	+ 3·29
Dec. 5	2. 20·88	21·18	+ 0·30	32. 33·43	32·80	− 0·63
6	2. 21·22	21·34	+ 0·12			
13				32. 30·28	34·60	+ 4·32
18	2. 22·59	22·48	− 0·11	32. 29·48	35·40	+ 5·92
19	2. 22·83	22·52	− 0·31	32. 33·10	35·60	+ 2·50
21				32. 42·66	35·80	− 6·86
24	2. 22·51	22·58	+ 0·07	32. 36·65	36·20	− 0·45
28	2. 22·44	22·46	+ 0·02	32. 36·24	36·40	+ 0·16
29	2. 22·27	22·40	+ 0·13			

SIDEREAL TIMES occupied by the TRANSIT of the MOON'S DIAMETER; and VERTICAL DIAMETERS of the MOON: compared with those of the Nautical Almanac.

DAY.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1855.	m s	s	s	′ ″	″	″
Jan. 4				29. 27·95	28·58	+ 0·63
Mar. 3	2. 4·73	4·90	+ 0·17	29. 47·75	46·12	− 1·63
4				29. 55·60	57·04	+ 1·44
April 7				31. 49·90	51·92	+ 2·02
May 5				32. 14·62	11·20	− 3·42
June 2				32. 38·86	38·66	− 0·20
June 27				32. 5·82	8·68	+ 2·86
28				32. 40·00	34·74	− 5·26
30				33. 6·82	5·52	− 1·30
July 28	2. 33·57	33·76	+ 0·19			
Sept. 25	2. 18·17	18·08	− 0·09	33. 14·64	15·66	+ 1·02
Nov. 26				30. 29·41	32·48	+ 3·07

VERTICAL DIAMETERS of VENUS, compared with those of the Nautical Almanac.

DAY.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1855.	″	″	″
April 12	11·10	11·80	+ 0·70
20	14·25	12·00	− 2·25
May 3	12·38	12·60	+ 0·22
June 6	15·41	15·60	+ 0·19
28	19·67	18·40	− 1·27
29	17·30	18·60	+ 1·30
July 3	21·65	19·20	− 2·45
4	18·77	19·40	+ 0·63
6	23·75	19·80	− 3·95
August 4	26·56	27·60	+ 1·04
9	30·35	29·40	− 0·95
18	34·46	33·60	− 0·86
25	39·70	37·80	− 1·90
September 8	51·78	47·20	− 4·58
October 5	56·50	58·60	+ 2·10
14	56·55	54·60	− 1·95
19	53·09	51·00	− 2·09
November 8	38·81	37·60	− 1·21
14	36·51	34·20	− 2·31
15	35·08	33·60	− 1·48
16	33·95	33·20	− 0·75
25	29·77	29·60	− 0·17
December 2	30·14	27·00	− 3·14
6	26·97	25·80	− 1·17
18	24·67	22·60	− 2·07
19	24·20	22·40	− 1·80
23	23·36	21·40	− 1·96
27	22·02	20·60	− 1·42

SIDEREAL TIMES occupied by the TRANSIT of the DIAMETER of JUPITER; and VERTICAL DIAMETERS of JUPITER: compared with those of the Nautical Almanac.

DAY.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1855.	s	s	s	″	″	″
July 4				48·23	42·80	−5·43
13				44·64	44·00	−0·64
20	3·28	3·26	−0·02	47·16	44·60	−2·56
Aug. 3				49·14	45·60	−3·54
9	3·03	3·38	+0·35	52·02	46·00	−6·02
10	3·19	3·38	+0·19	45·79	46·00	+0·21
13	3·53	3·38	−0·15	47·69	46·00	−1·69
15	3·51	3·40	−0·11	48·50	46·20	−2·30
16				47·56	46·20	−1·36
17	3·40	3·32	−0·08	50·44	46·20	−4·24
20	3·40	3·50	+0·10	50·96	46·20	−4·76
21	3·42	3·40	−0·02	47·81	46·20	−1·61
Aug. 24	3·33	3·42	+0·09	47·53	46·20	−1·33
28	3·32	3·40	+0·08	46·85	46·00	−0·85
29	3·54	3·40	−0·14	49·14	46·00	−3·14
30	3·40	3·40	0·00	47·64	46·00	−1·64
31	2·95	3·40	+0·45	52·20	46·00	−6·20
Sept. 1	3·50	3·40	−0·10	46·58	46·00	−0·58
3	3.50	3·38	−0·12	46·04	45·80	−0·24
6	3.30	3·38	+0·08	49·17	45·60	−3·57
7	3·50	3·38	−0·12	47·76	45·60	−2·16
8	3·28	3·38	+0·10			
10	3·40	3·36	−0·04	46·58	45·40	−1·18
11	3·29	3·36	+0·07	48·15	45·40	−2·75

SIDEREAL TIMES occupied by the TRANSIT of the DIAMETER of JUPITER; and VERTICAL DIAMETERS of JUPITER: compared with those of the Nautical Almanac—*concluded.*

DAY.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	DAY.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1855.	s	s	s	"	"	"	1855.	s	s	s	"	"	"
Sept. 12	3·46	3·34	−0·12	48·19	45·20	−2·99	Oct. 18	2·94	3·08	+0·14	42·84	41·60	−1·24
13	3·08	3·34	+0·26	47·26	45·20	−2·06	19	3·12	3·06	−0·06	42·25	41·40	−0·85
19	3·40	3·30	−0·10	45·68	44·60	−1·08	24	2·89	3·02	+0·13	42·32	40·60	−1·72
20	3.44	3·30	−0·14	45·59	44·60	−0·99	27	2·95	3·00	+0·05	42·59	40·40	−2·19
21	3·29	3·30	+0·01	45·69	44·60	−1·09							
22	2·75	3·30	+0·55	48·74	44·60	−4·14	Nov. 6	2·56	2·90	+0·34			
24	3·24	3·28	+0·04	50·63	44·40	−6·23	10	2.90	2·84	−0·06	39·98	38·40	−1·58
25	3·34	3·28	−0·06				15	2·69	2·82	+0·13	40·53	37·80	−2·73
26	3·28	3·28	0·00	48·38	44·20	−4·18	22	2·79	2·74	−0·05	39·51	37·00	−2·51
							28	2·67	2·68	+0·01	39·81	36·40	−3·41
Oct. 1	3·31	3·22	−0·09	45·63	43·60	−2·03	30	2·70	2·66	−0·04	36·91	36·20	−0·71
2	3·08	3·22	+0·14	45·90	43·40	−2·50							
4	3·31	3·20	−0·11	44·20	43·20	−1·00	Dec. 5	2·50	2·64	+0·14	38·23	35·60	−2·63
6	3·15	3·20	+0·05	46·44	43·00	−3·44	6	2·62	2·64	+0·02	37·59	35·60	−1·99
8	3·12	3·16	+0·04	44·31	42·60	−1·71	7	2·30	2·62	+0·32	36·41	35·40	−1·01
10	3·00	3·14	+0·14	42·60	42·40	−0·20	8	2·64	2·62	−0·02	38·34	35·40	−2·94

SIDEREAL TIMES occupied by the TRANSIT of the DIAMETER of SATURN, compared with those of the Nautical Almanac.

Jan. 10	1·46	1·38	−0·08				Mar. 3	1·31	1·26	−0·05			
15	1·37	1·38	+0·01				7	1·37	1·26	−0·11			
17	1·49	1·36	−0·13				8	1·37	1·26	−0·11			
19	1·39	1·36	−0·03				Oct. 2	1·31	1·30	−0·01			
Feb. 10	1·43	1·30	−0·13				Dec. 5	1·52	1·44	−0·08			
14	1·30	1·30	0·00				6	1·63	1·44	−0·19			
15	1·44	1·30	−0·14				12	1·52	1·44	−0·08			
16	1·40	1·30	−0·10				13	1·43	1·44	+0·01			
17	1·37	1·30	−0·07				19	1·40	1·44	+0·04			
20	1·44	1·30	−0·14				21	1·46	1·44	−0·02			
22	1·36	1·28	−0·08				24	1·64	1·44	−0·20			
23	1·39	1·28	−0·11				28	1·51	1·44	−0·07			

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the SUN'S CENTER.

Mean Solar Time of Observation.	R. A. from Observation.	Seconds of Tabular R. A.	Apparent Error of Tables in R. A.	N. P. D. from Observation.	Seconds of Tabular N. P. D.	Apparent Error of Tables in N. P. D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
Jan. 5. 0. 1. 38·5	19. 3. 38·76	38·67	− 0·09	112. 39. 12·22	11·40	− 0·82
18. 0. 10. 38·7	19. 59. 59·20	59·06	− 0·14	110. 35. 56·84	56·50	− 0·34
27. 0. 13. 1·1	20. 37. 50·98	50·77	− 0·21	108. 31. 25·07	25·30	+ 0·23
Feb. 10. 0. 14. 31·1	21. 34. 32·98	32·72	− 0·26	104. 25. 47·70	47·70	0·00
12. 0. 14. 31·1	21. 42. 26·11	26·03	− 0·08	103. 46. 26·27	25·10	− 1·17
15. 0. 14. 26·2	21. 54. 10·91	10·36	− 0·55	102. 45. 37·75	39·90	+ 2·15
16. 0. 14. 22·7	21. 58. 3·96	3·67	− 0·29	102. 24. 59·18	59·60	+ 0·42
20. 0. 14. 2·8	22. 13. 30·14	29·79	− 0·35	101. 0. 19·83	23·30	+ 3·47
21. 0. 13. 55·9	22. 17. 19·96	19·60	− 0·36	100. 38. 45·10	47·70	+ 2·60
22. 0. 13. 48·6	22. 21. 9·10	8·74	− 0·36	100. 16. 59·88	62·40	+ 2·52
24. 0. 13. 32·1	22. 28. 45·57	45·07	− 0·50	99. 33. 1·79	4·20	+ 2·41
March 1. 0. 12. 39·5	22. 47. 35·72	35·37	− 0·35	97. 40. 44·56	47·10	+ 2·54
5. 0. 11. 48·2	23. 2. 30·42	30·08	− 0·34	96. 8. 54·80	57·70	+ 2·90
6. 0. 11. 34·1	23. 6. 12·89	12·62	− 0·27	95. 45. 45·81	46·80	+ 0·99
7. 0. 11. 19·9	23. 9. 55·15	54·75	− 0·40	95. 22. 31·21	31·20	− 0·01
8. 0. 11. 5·1	23. 13. 36·92	36·50	− 0·42	94. 59. 11·92	11·20	− 0·72
9. 0. 10. 50·0	23. 17. 18·26	17·87	− 0·39	94. 35. 44·32	47·30	+ 2·98

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the SUN'S CENTER—*continued.*

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
March 30. 0. 4. 40·9	0. 33. 55·81	55·54	— 0·27	....	...	...
31. 0. 4. 22·6	0. 37. 33·99	33·59	— 0·40	85. 56. 59·96	59·10	— 0·86
April 2. 0. 3. 45·8	0. 44. 50·25	49·96	— 0·29	85. 10. 41·18	41·30	+ 0·12
5. 0. 2. 52·1	0. 55. 45·98	45·49	— 0·49	84. 1. 53·79	54·00	+ 0·21
7. 0. 2. 16·8	1. 3. 3·75	3·43	— 0·32	83. 16. 30·86	32·50	+ 1·64
10. 0. 1. 26·0	1. 14. 2·47	2·10	— 0·37	82. 9. 20·63	21·60	+ 0·97
11. 0. 1. 9·6	1. 17. 42·57	42·21	— 0·36	81. 47. 12·46	13·10	+ 0·64
12. 0. 0. 53·2	1. 21. 22·63	22·62	— 0·01	81. 25. 11·48	12·60	+ 1·12
14. 0. 0. 22·0	1. 28. 44·45	44·38	— 0·07	80. 41. 37·63	37·40	— 0·23
15. 23. 59. 51·9	1. 36. 7·64	7·51	— 0·13	79. 58. 38·94	38·80	— 0·14
16. 23. 59. 37·9	1. 39. 49·94	49·63	— 0·31	79. 37. 22·81	24·20	+ 1·39
17. 23. 59. 23·8	1. 43. 32·37	32·11	— 0·26	79. 16. 20·62	19·80	— 0·82
18. 23. 59. 10·2	1. 47. 15·25	14·99	— 0·26	78. 55. 26·02	26·10	+ 0·08
19. 23. 58. 56·8	1. 50. 58·42	58·27	— 0·15	78. 34. 42·56	43·30	+ 0·74
20. 23. 58. 44·4	1. 54. 42·52	41·95	— 0·57	78. 14. 11·89	11·80	— 0·09
22. 23. 58. 19·7	2. 2. 10·82	10·59	— 0·23	77. 33. 42·63	44·20	+ 1·57
23. 23. 58. 8·4	2. 5. 56·05	55·56	— 0·49	77. 13. 47·49	48·80	+ 1·31
25. 23. 57. 46·7	2. 13. 27·11	26·87	— 0·24	76. 34. 34·83	36·20	+ 1·37
26. 23. 57. 36·4	2. 17. 13·61	13·24	— 0·37	76. 15. 18·06	19·80	+ 1·74
27. 23. 57. 26·7	2. 21. 0·48	0·10	— 0·38	75. 56. 16·95	16·90	— 0·05
May 1. 23. 56. 53·1	2. 36. 12·99	12·65	— 0·34	74. 42. 25·75	27·60	+ 1·85
2. 23. 56. 45·9	2. 40. 2·34	2·13	— 0·21	74. 24. 36·76	37·30	+ 0·54
4. 23. 56. 33·6	2. 47. 43·08	42·78	— 0·30	73. 49. (48·91)	42·90	(— 6·01)
6. 23. 56. 23·2	2. 55. 25·87	25·74	— 0·13	....	...	...
7. 23. 56. 19·2	2. 59. 18·33	18·09	— 0·24	72. 59. 18·54	21·80	+ 3·26
8. 23. 56. 15·2	3. 3. 10·95	11·03	+ 0·08	....	...	...
9. 23. 56. 12·3	....	...	...	72. 27. 9·64	11·50	+ 1·86
16. 23. 56. 7·9	3. 34. 36·08	35·85	— 0·23	70. 44. 0·72	1·50	+ 0·78
18. 23. 56. 11·7	3. 42. 32·95	32·80	— 0·15	....	...	...
23. 23. 56. 30·8	4. 2. 34·87	34·52	— 0·35	69. 16. 48·97	49·70	+ 0·73
25. 23. 56. 42·1	4. 10. 39·23	38·75	— 0·48	68. 55. (13·40)	3·70	(— 9·70)
June 5. 23. 58. 14·5	4. 55. 34·15	33·84	— 0·31	67. 22. 3·05	0·50	— 2·55
7. 23. 58. 36·3	5. 3. 49·09	48·85	— 0·24	....	...	...
10. 23. 59. 11·2	5. 16. 13·82	13·58	— 0·24	66. 55. 17·97	17·80	— 0·17
20. 0. 1. 5·6	5. 53. 37·54	37·41	— 0·13	66. 32. 50·92	52·60	+ 1·68
21. 0. 1. 18·7	5. 57. 47·20	47·04	— 0·16	66. 32. 27·62	27·00	— 0·62
22. 0. 1. 31·6	6. 1. 56·73	56·63	— 0·10	66. 32. 26·23	26·30	+ 0·07
27. 0. 2. 35·4	6. 22. 43·43	43·28	— 0·15	66. 38. 34·86	34·30	— 0·56
28. 0. 2. 47·6	6. 26. 52·27	52·20	— 0·07	66. 41. 2·08	1·90	— 0·18
29. 0. 2. 59·9	6. 31. 1·12	0·93	— 0·19	66. 43. 54·19	54·10	— 0·09
30. 0. 3. 11·8	6. 35. 9·67	9·47	— 0·20	66. 47. 11·16	10·60	— 0·56
July 2. 0. 3. 35·2	6. 43. 26·22	25·86	— 0·36	66. 54. 59·31	56·80	— 2·51
3. 0. 3. 46·3	6. 47. 33·90	33·69	— 0·21	66. 59. 27·95	26·10	— 1·85
5. 0. 4. 7·9	6. 55. 48·73	48·51	— 0·22	67. 9. 36·26	36·90	+ 0·64
6. 0. 4. 18·1	6. 59. 55·52	55·47	— 0·05	....	...	...
10. 0. 4. 56·5	7. 16. 20·18	19·84	— 0·34	67. 41. 61·05	58·80	— 2·25
13. 0. 5. 20·9	7. 28. 34·41	33·96	— 0·45	68. 6. 4·02	2·50	— 1·52
14. 0. 5. 28·1	7. 32. 38·13	37·76	— 0·37	68. 14. 50·56	49·10	— 1·46
18. 0. 5. 51·8	7. 48. 48·15	47·97	— 0·18	68. 53. 37·84	36·90	— 0·94
20. 0. 6. 0·9	7. 56. 50·41	49·85	— 0·56	69. 15. 11·31	10·40	— 0·91
21. 0. 6. 4·2	8. 0. 50·28	49·95	— 0·33	69. 26. 29·75	28·70	— 1·05
23. 0. 6. 10·0	8. 8. 49·18	48·37	(— 0·81)	69. 50. 8·15	7·10	— 1·05
28. 0. 6. 12·1	8. 28. 34·03	33·97	— 0·06	70. 55. 0·90	1·40	+ 0·50
Aug. 1. 0. 6. 3·8	8. 44. 11·99	11·63	— 0·36	71. 52. 34·32	37·90	+ 3·58
2. 0. 6. 0·0	8. 48. 4·70	4·54	— 0·16	72. 7. 49·44	47·10	— 2·34
3. 0. 5. 55·9	8. 51. 57·13	56·88	— 0·25	72. 23. 14·70	14·00	— 0·70
8. 0. 5. 26·0	....	...	...	73. 44. 45·75	41·20	— 4·55
10. 0. 5. 10·2	9. 18. 47·19	46·99	— 0·20	74. 19. 9·84	8·90	— 0·94
13. 0. 4. 41·9	9. 30. 8·55	8·50	— 0·05	75. 12. 45·29	43·50	— 1·79
16. 0. 4. 8·9	9. 41. 25·15	25·02	— 0·13	76. 8. 29·40	25·70	— 3·70

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the SUN'S CENTER—*concluded.*

Mean Solar Time of Observation.	R. A. from Observation.	Seconds of Tabular R. A.	Apparent Error of Tables in R. A.	N. P. D. from Observation.	Seconds of Tabular N. P. D.	Apparent Error of Tables in N. P. D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
Aug. 18. 0. 3. 44·2	9. 48. 53·41	53·33	− 0·08	76. 46. 40·67	40·40	− 0·27
21. 0. 3. 3·4	10. 0. 2·17	1·92	− 0·25	77. 45. 37·75	35·40	− 2·35
22. 0. 2. 48·6	10. 3. 43·90	43·80	− 0·10	78. 5. 39·33	37·30	− 2·03
25. 0. 2. 2·0	10. 14. 46·83	46·66	− 0·17	79. 6. 50·20	48·80	− 1·40
28. 0. 1. 11·6	10. 25. 45·97	45·76	− 0·21	80. 9. 35·13	33·00	− 2·13
29. 0. 0. 53·9	10. 29. 24·83	24·70	− 0·13	80. 30. 48·51	46·90	− 1·61
30. 0. 0. 36·0	10. 33. 3·38	3·30	− 0·08	80. 52. 11·48	9·90	− 1·58
31. 0. 0. 17·9	10. 36. 41·81	41·57	− 0·24	81. 13. 43·66	41·70	− 1·96
Sept. 4. 23. 58. 12·4	10. 54. 48·76	48·72	− 0·04	83. 3. 23·56	22·30	− 1·26
7. 23. 57. 41·5	11. 5. 38·41	38·26	− 0·15	84. 10. 38·79	36·60	− 2·19
10. 23. 56. 40·9	11. 16. 26·33	26·29	− 0·04	85. 18. 46·52	44·30	− 2·22
11. 23. 56. 20·2	....	...	....	85. 41. 37·54	37·10	− 0·44
18. 23. 53. 52·8	11. 45. 10·18	10·22	+ 0·04	....	...	....
19. 23. 53. 31·9	11. 48. 45·78	45·60	− 0·18	88. 46. 54·02	52·40	− 1·62
20. 23. 53. 10·7	11. 52. 21·07	21·03	− 0·04	89. 10. 14·03	13·20	− 0·83
21. 23. 52. 49·6	11. 55. 56·40	56·52	+ 0·12	89. 35. 33·63	35·30	+ 1·67
24. 23. 51. 47·4	12. 6. 43·73	43·60	− 0·13	90. 43. 46·17	46·90	+ 0·73
25. 23. 51. 26·8	12. 10. 19·67	19·58	− 0·09	91. 7. 13·11	11·40	− 1·71
26. 23. 51. 6·5	....	...	....	91. 30. 35·27	35·49	+ 0·22
Oct. 1. 23. 49. 28·8	12. 32. 0·67	0·10	− 0·57	93. 27. 23·84	23·10	− 0·74
3. 23. 48. 51·3	12. 39. 16·11	15·94	− 0·17	94. 13. 55·31	53·20	− 2·11
4. 23. 48. 33·1	12. 42. 54·43	54·39	− 0·04	94. 37. 4·43	4·20	− 0·23
5. 23. 48. 15·5	12. 46. 33·38	33·22	− 0·16	95. 0. 12·17	11·80	− 0·37
9. 23. 47. 8·8	13. 1. 12·71	12·71	0·00	96. 32. 6·78	2·50	− 4·28
12. 23. 46. 23·9	13. 12. 17·34	17·15	− 0·19	97. 40. 5·24	2·40	− 2·84
14. 23. 45. 55·6	13. 19. (42·09)	42·64	(+ 0·55)	98. 24. 55·45	50·90	− 4·55
16. 23. 45. 30·8	13. 27. 10·33	10·31	− 0·02	99. 9. 10·54	10·60	+ 0·06
17. 23. 45. 19·2	13. 30. 55·19	55·00	− 0·19	99. 31. 9·32	8·70	− 0·62
18. 23. 45. 7·9	13. 34. 40·45	40·28	− 0·17	99. 52. 57·90	58·40	+ 0·50
19. 23. 44. 57·0	13. 38. 26·08	26·16	+ 0·08	100. 14. 39·69	39·20	− 0·49
31. 23. 43. 43·2	14. 24. 30·73	30·60	− 0·13	104. 21. 8·51	8·20	− 0·31
Nov. 4. 23. 43. 43·3	14. 40. 17·01	16·98	− 0·03	....	...	....
5. 23. 43. 45·5	14. 44. 15·81	15·68	− 0·13	105. 54. 49·65	45·00	− 4·65
8. 23. 43. 57·0	14. 56. 16·95	16·86	− 0·09	106. 47. 48·43	48·30	− 0·13
14. 23. 44. 42·5	15. 20. 41·99	42·07	+ 0·08	108. 26. 2·54	1·20	− 1·34
25. 23. 47. 22·9	16. 6. 44·95	44·87	− 0·08	110. 54. 37·69	36·50	− 1·19
26. 23. 47. 42·0	16. 11. 0·64	0·72	+ 0·08	111. 5. 53·93	52·90	− 1·03
Dec. 4. 23. 50. 40·8	16. 45. 32·61	32·72	+ 0·11	112. 21. 21·95	23·80	+ 1·85
5. 23. 51. 6·3	16. 49. 54·52	54·55	+ 0·03	112. 28. 55·97	55·70	− 0·27
12. 23. 54. 16·1	17. 20. 40·79	40·82	+ 0·03	113. 9. 10·48	8·60	− 1·88
17. 23. 56. 41·8	17. 42. 49·65	49·58	− 0·07	113. 24. 4·09	5·10	+ 1·01
18. 23. 57. 11·3	17. 47. 15·80	15·88	+ 0·08	113. 25. 41·31	40·20	− 1·11
19. 23. 57. 40·9	17. 51. 42·04	42·30	+ 0·26	....	...	....
20. 23. 58. 11·0	....	...	....	113. 27. 25·16	25·60	+ 0·44
23. 23. 59. 40·9	18. 9. 28·49	28·48	− 0·01	113. 26. 30·13	31·60	+ 1·47
28. 0. 1. 39·8	18. 27. 14·02	13·98	− 0·04	113. 18. 44·98	44·30	− 0·68
29. 0. 2. 9·7	18. 31. (40·62)	40·02	(− 0·60)	113. 15. 38·79	37·10	− 1·69

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of the MOON.

Jan.	3. 12. 39. 44·9	7. 32. 0·03	0·47	+ 0·44	63. 46. 48·66	45·70	− 2·96
	4. 13. 29. 13·0	8. 25. 32·84	33·35	+ 0·51	65. 46. 3·42	2·40	− 1·02
	27. 8. 3. 3·9	4. 29. 11·02	11·29	+ 0·27	66. 24. 26·54	20·20	− 6·34
Feb.	3. 13. 42. 19·6	10. 36. 58·38	58·70	+ 0·32	76. 8. 37·84	41·50	+ 3·66
	9. 18. 0. 54·3	15. 19. 54·83	55·15	+ 0·32	108. 52. 57·55	60·20	+ 2·65
	20. 3. 32. 30·7	1. 32. 30·70	31·14	+ 0·44	82. 19. 36·39	32·00	− 4·39
	22. 5. 8. 26·4	3. 16. 35·27	35·45	+ 0·18	71. 17. 20·54	14·60	− 5·94
	23. 5. 57. 49·3	4. 10. 2·79	3·15	+ 0·36	67. 15. 63·47	59·80	− 3·67
	25. 7. 39. 53·1	....	...	....	63. 0. 31·64	27·30	− 4·34

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of the MOON—*continued.*

Mean Solar Time of Observation.	R. A. from Observation.	Seconds of Tabular R. A.	Apparent Error of Tables in R. A.	N. P. D. from Observation.	Seconds of Tabular N. P. D.	Apparent Error of Tables in N. P. D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
March 1. 10. 56. 30·0	9. 33. 11·95	11·58	− 0·37	70. 9. 40·58	39·30	− 1·28
2. 11. 40. 35·1	10. 21. 20·79	20·39	− 0·40	74. 33. 18·56	18·00	− 0·56
3. 12. 22. 53·2	11. 7. 42·49	42·37	− 0·12	79. 36. 47·69	46·90	− 0·79
4. 13. 4. 6·0	11. 52. 59·28	59·48	+ 0·20	85. 7. 56·12	59·60	+ 3·48
5. 13. 45. 8·5	12. 38. 4·33	4·57	+ 0·24	90. 54. 43·91	49·90	+ 5·99
6. 14. 26. 58·3	13. 23. 57·53	58·15	+ 0·62	96. 44. 36·90	44·80	+ 7·90
8. 15. 57. 27·7	15. 2. 34·98	35·66	+ 0·68	107. 36. 19·65	26·80	+ 7·15
25. 6. 24. 24·3	6. 34. 58·83	59·60	+ 0·77	62. 34. 35·91	32·90	− 3·01
26. 7. 15. 47·6	7. 30. 27·15	28·07	+ 0·92	63. 21. 40·91	38·80	− 2·11
30. 10. 20. 3·2	10. 50. 59·18	59·05	− 0·13	77. 38. 4·99	5·90	+ 0·91
31. 11. 1. 41·9	11. 36. 41·29	41·07	− 0·22	83. 4. 2·25	3·50	+ 1·25
April 1. 11. 42. 59·2	12. 22. 1·92	1·70	− 0·22	88. 51. 37·21	39·00	+ 1·79
4. 13. 54. 48·8	14. 46. 2·88	3·38	+ 0·50	106. 8. 44·37	52·80	+ 8·43
7. 16. 37. 10·8	17. 40. 41·15	41·99	+ 0·84	116. 56. 33·27	37·30	+ 4·03
20. 3. 20. 30·9	5. 13. 5·62	5·97	+ 0·35	....	...	...
21. 4. 14. 11·8	6. 10. 51·85	52·10	+ 0·25	....	...	...
22. 5. 7. 3·1	7. 7. 48·41	48·99	+ 0·58	62. 45. 30·09	27·20	− 2·89
23. 5. 57. 58·9	8. 2. 49·18	49·67	+ 0·49	64. 20. 38·76	38·10	− 0·66
25. 7. 32. 0·0	9. 44. 58·79	59·43	+ 0·64	70. 55. 31·51	34·30	+ 2·79
27. 8. 57. 14·9	11. 18. 20·83	21·08	+ 0·25	80. 45. 18·85	18·00	− 0·85
May 1. 11. 48. 56·9	14. 26. 17·25	17·60	+ 0·35	104. 6. 25·38	29·00	+ 3·62
2. 12. 38. 26·5	15. 19. 51·54	51·93	+ 0·39	109. 18. 30·51	36·00	+ 5·49
4. 14. 30. 30·7	17. 20. 7·28	8·06	+ 0·78	116. 25. 16·13	22·40	+ 6·27
5. 15. 31. 41·8	18. 25. 24·98	26·12	+ 1·14	117. 32. 36·14	40·00	+ 3·86
8. 18. 30. 29·2	21. 36. 31·40	32·47	+ 1·07	109. 47. 64·22	59·60	− 4·62
23. 6. 9. 56·9	10. 13. 5·78	6·05	+ 0·27	73. 34. 16·36	20·80	+ 4·44
25. 7. 32. 58·1	11. 44. 13·70	14·14	+ 0·44	83. 59. 13·47	19·60	+ 6·13
26. 8. 13. 49·5	12. 29. 8·40	8·73	+ 0·33	89. 46. 31·63	40·50	+ 8·87
June 1. 13. 20. 3·8	17. 59. 52·38	53·18	+ 0·80	117. 17. 32·43	35·20	+ 2·77
2. 14. 23. 46·7	19. 7. 42·30	43·54	+ 1·24	117. 11. 41·47	42·40	+ 0·93
5. 17. 20. 27·3	22. 16. 41·58	42·44	+ 0·86	106. 0. 41·62	34·40	− 7·22
9. 20. 32. 13·7	1. 44. 45·73	45·39	− 0·34	80. 34. 45·72	36·90	− 8·82
19. 4. 4. 55·6	9. 54. 10·97	11·27	+ 0·30	....	...	...
20. 4. 47. 32·2	10. 40. 51·14	51·44	+ 0·30	76. 37. 22·70	26·10	+ 3·40
21. 5. 28. 24·8	11. 25. 47·01	47·21	+ 0·20	81. 51. 30·64	34·10	+ 3·46
24. 7. 31. 30·3	13. 41. 2·48	2·75	+ 0·27	99. 4. 16·50	26·20	+ 9·70
26. 9. 6. 38·7	15. 24. 19·59	19·80	+ 0·21	109. 46. 7·79	15·00	+ 7·21
27. 10. 1. 44·1	16. 23. 30·60	30·83	+ 0·23	113. 54. 55·88	64·40	+ 8·52
28. 11. 2. 10·6	17. 28. 3·55	4·25	+ 0·70	116. 37. 44·86	54·20	+ 9·34
30. 13. 11. 33·2	19. 45. 40·51	41·87	+ 1·36	116. 9. 18·56	19·40	+ 0·84
July 4. 16. 56. 32·1	23. 47. 2·68	3·40	+ 0·72	95. 23. 15·72	10·40	− 5·32
9. 20. 55. 53·5	4. 6. 46·18	46·10	− 0·08	....	...	...
19. 4. 5. 40·3	....	...	...	85. 32. 32·84	36·50	+ 3·66
20. 4. 45. 22·8	....	...	...	91. 13. 11·24	15·80	+ 4·56
25. 8. 43. 28·4	16. 55. 25·63	26·43	+ 0·80	115. 37. 53·91	64·10	+10·19
26. 9. 45. 23·1	18. 1. 27·14	28·09	+ 0·95	117. 22.(54·98)	51·80	(− 3·18)
27. 10. 50. 22·3	19. 10. 33·56	34·99	+ 1·43	117. 6. 31·57	37·40	+ 5·83
28. 11. 55. 15·8	20. 19. 34·23	35·76	+ 1·53	114. 41. 29·81	32·50	+ 2·69
31. 14. 48. 1·0	23. 24. 37·46	38·67	+ 1·21	97. 57. 60·34	54·90	− 5·44
Aug. 2. 16. 26. 28·3	1. 11. 14·11	14·74	+ 0·63	84. 15. 5·37	5·20	− 0·17
4. 18. 2. 53·1	2. 55. 47·88	48·40	+ 0·52	72. 26. 56·27	49·90	− 6·37
18. 4. 5. 26·9	13. 51. 15·89	16·93	+ 1·04	100. 49. 26·89	31·90	+ 5·01
21. 6. 30. 14·6	16. 28. 17·00	18·17	+ 1·17	114. 34. 51·01	58·10	+ 7·09
25. 10. 36. 58·8	20. 51. 27·97	29·38	+ 1·41	112. 53. 22·48	21·00	− 1·48
26. 11. 36. 48·5	21. 55. 24·05	25·50	+ 1·45	107. 44. 14·30	9·90	− 4·40
27. 12. 32. 51·6	22. 55. 32·85	34·27	+ 1·42	101. 20. 65·69	58·10	− 7·59
28. 13. 25. 37·0	23. 52. 23·49	24·99	+ 1·50	94. 18. 27·42	17 00	−10·42
29. 14. 16. 11·8	0. 47. 3·20	4·43	+ 1·23	87. 8. 52·38	44·90	− 7·48
30. 15. 5. 52·4	1. 40. 48·49	49·26	+ 0·77	80. 20. 25·14	16·30	− 8·84
31. 15. 55. 46·9	....	...	...	74. 15. 39·42	35·00	− 4·42

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of the MOON—*concluded.*

Mean Solar Time of Observation.	R. A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
Sept. 1. 16. 46. 44·8	3. 29. 50·62	51·20	+ 0·58	69. 12. 53·35	48·30	— 5·05
2. 17. 39. 4·7	4. 26. 15·62	16·15	+ 0·53	65. 25. 63·24	57·70	— 5·54
5. 20. 18. 31·4	7. 17. 58·16	58·87	+ 0·71	....	...	...
6. 21. 8. 56·0	8. 12. 27·59	28·36	+ 0·77	64. 49. 4·40	7·90	+ 3·50
20. 7. 18. 31·5	19. 14. 58·45	59·63	+ 1·18	117. 19. 39·06	36·00	— 3·06
21. 8. 19. 54·3	20. 20. 27·85	28·92	+ 1·07	114. 52. 5·65	2·60	— 3·05
22. 9. 19. 25·2	21. 24. 5·16	6·08	+ 0·92	110. 35. 29·63	26·10	— 3·53
23. 10. 16. 0·4	22. 24. 46·14	46·99	+ 0·85	104. 50. 34·09	26·20	— 7·89
24. 11. 9. 42·4	23. 22. 33·52	34·41	+ 0·89	98. 5. 40·11	31·70	— 8·41
25. 12. 1. 20·0	0. 18. 16·13	17·11	+ 0·98	90. 52. 16·42	5·30	—11·12
26. 12. 52. 1·6	1. 13. 2·69	3·79	+ 1·10	83. 40. 69·74	57·20	—12·54
Oct. 2. 18. 12. 20·4	6. 57. 53·39	54·25	+ 0·86	....	...	...
5. 20. 38. 57·1	9. 36. 43·88	44·65	+ 0·77	70. 25. 55·42	60·00	+ 4·58
16. 4. 11. 12·6	17. 49. 39·20	39·81	+ 0·61	....	...	...
18. 6. 10. 29·2	19. 57. 8·47	8·87	+ 0·40	116. 4. 19·58	16·60	— 2·98
19. 7. 8. 44·7	20. 59. 30·15	30·80	+ 0·65	112. 33. 23·97	20·80	— 3·17
24. 11. 28. 10·1	1. 39. 20·87	22·46	+ 1·59	80. 22. 36·65	27·50	— 9·15
26. 13. 13. 15·4	3. 32. 36·52	37·43	+ 0·91	68. 46. 41·36	31·50	— 9·86
31. 17. 46. 32·4	8. 26. 21·28	21·72	+ 0·44	65. 20. 49·15	50·50	+ 1·35
Nov. 3. 20. 0. 1·9	10. 52. 2·32	2·89	+ 0·57	78. 9. 2·79	6·60	+ 3·81
15. 5. 3. 50·4	20. 40. 42·32	42·95	+ 0·63	113. 46. 29·36	26·40	— 2·96
16. 5. 59. 17·9	21. 40. 15·48	15·98	+ 0·50	109. 15. 42·45	38·20	— 4·25
20. 9. 17. 56·9	1. 15.(13·50)	13·44	(— 0·06)	83. 23. 12·58	6·40	— 6·18
22. 10. 59. 7·2	3. 4. 33·38	33·63	+ 0·25	71. 10. 42·30	34·00	— 8·30
25. 13. 47. 1·4	6. 4. 44·78	45·49	+ 0·71	62. 8. 44·19	40·00	— 4·19
26. 14. 43. 9·9	7. 4. 59·08	59·86	+ 0·78	62. 25. 44·58	44·00	— 0·58
29. 17. 12. 15·3	9. 46. 18·65	18·69	+ 0·04	71. 21. 15·94	17·70	+ 1·76
Dec. 2. 19. 15. 20·4	12. 1. 33·67	33·94	+ 0·27	86. 59. 51·90	56·80	+ 4·90
18. 8. 1. 52·6	1. 49. 20·17	20·63	+ 0·46	79. 1. 45·38	36·90	— 8·48
19. 8. 51. 15·7	2. 42. 47·94	48·46	+ 0·52	73. 9. 67·27	58·30	— 8·97
20. 9. 43. 9·3	3. 38. 47·77	47·95	+ 0·18	68. 15. 68·12	56·70	—11·42
21. 10. 37. 43·4	4. 37. 26·26	26·29	+ 0·03	64. 39. 9·57	7·20	— 2·37
24. 13. 25. 30·0	7. 37. 30·95	31·61	+ 0·66	63. 23. 11·38	7·80	— 3·58
26. 15. 5. 5·1	9. 25. 14·68	14·90	+ 0·22	69. 42. 21·58	23·50	+ 1·92
27. 15. 49. 25·9	10. 13. 39·32	39·58	+ 0·26	74. 14. 45·57	44·50	— 1·07
28. 16. 30. 58·5	10. 59. 15·26	15·72	+ 0·46	....	...	...
29. 17. 10. 44·2	11. 43. 4·08	4·28	+ 0·20	84. 50. 4·70	8·30	+ 3·60
30. 17. 49. 50·9	12. 26. 13·79	13·64	— 0·15	90. 30. 49·10	51·40	+ 2·30

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of MERCURY.

Feb. 20. 1. 18. 7·0	23. 17. 44·94	44·28	— 0·66	92. 43. 40·64	37·90	— 2·74
April 18. 22. 39. 26·9	0. 27. 18·82	18·71	— 0·11	89. 53. 23·90	28·00	+ 4·10
19. 22. 41. 15·4	0. 33. 4·22	4·39	+ 0·17	89. 14. 36·89	39·80	+ 2·91
May 1. 23. 11. 24·8	1. 50. 37·21	37·19	— 0·02	80. 20. 8·58	7·80	— 0·78
2. 23. 14. 43·7	1. 57. 53·25	53·38	+ 0·13	79. 31. 30·59	28·00	— 2·59
June 6. 1. 37. 14·2	6. 34. 50·08	50·19	+ 0·11	64. 47. 52·87	52·10	— 0·77
11. 1. 45. 20·8	7. 2. 40·80	40·99	+ 0·19	65. 49. 51·42	53·60	+ 2·18
20. 1. 43. 21·7	7. 36. 10·45	10·56	+ 0·11	68. 30. 24·23	29·50	+ 5·27
22. 1. 39. 44·5	7. 40. 25·77	25·80	+ 0·03	69. 8. 32·09	38·20	+ 6·11
Aug. 3. 22. 46. 45·7	7. 36. 30·53	30·88	+ 0·35	69. 22. 58·95	57·50	— 1·45
17. 23. 32. 29·5	9. 17. 33·64	34·13	+ 0·49	72. 37. 44·23	40·60	— 3·63
Sept. 26. 1. 8. 57·2	13. 28. 2·80	2·70	— 0·10	100. 39. 45·69	51·20	+ 5·51

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of VENUS.

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
Jan. 18. 0.47.40·2	20.37. 6·80	6·62	− 0·18	109.55. 1·70	1·20	− 0·50
March 7. 1.26.42·9	0.25.30·49	30·52	+ 0·03	88.21.11·75	6·80	− 4·95
8. 1.27.16·3	0.30. 0·62	0·68	+ 0·06	87.50. 3·73	0·90	− 2·83
31. 1.41.35·8	2.15. 3·19	3·30	+ 0·11	....	...	...
April 2. 1.43. 6·1	2.24.26·77	27·06	+ 0·29	75.37.18·44	15·10	− 3·34
12. 1.51.35·0	3.12.22·68	22·78	+ 0·10	71.34.20·81	16·50	− 4·31
16. 1.55.26·9	3.32. 1·64	1·59	− 0·05	70. 9.33·64	32·10	− 1·54
17. 1.56.28·4	3.36.58·60	58·87	+ 0·27	69.49.39·23	36·60	− 2·63
18. 1.57.29·0	3.41.56·96	57·16	+ 0·20	69.30.17·00	12·70	− 4·30
19. 1.58.31·4	3.46.56·08	56·45	+ 0·37	69.11.21·47	21·10	− 0·37
20. 1.59.35·2	3.51.56·58	56·73	+ 0·15	68.53. 4·95	2·40	− 2·55
21. 2. 0.39·7	3.56.57·81	57·96	+ 0·15	68.35.20·33	17·30	− 3·03
23. 2. 2.51·2	4. 7. 2·84	3·21	+ 0·37	68. 1.31·21	30·50	− 0·71
26. 2. 6.15·8	....	...	...	67.15.20·33	17·30	− 3·03
May 2. 2.13·24·3	4.53. 6·62	6·84	+ 0·22	65.59.47·50	45·00	− 2·50
3. 2.14.38·1	4.58.17·20	17·20	0·00	65.49.29·84	26·40	− 3·44
8. 2.20.52·4	5.24.15·32	15·50	+ 0·18	65. 8. 0·73	1·90	+ 1·17
June 6. 2.54.38·3	7.52.26·90	26·68	− 0·22	66.48.43·97	44·60	+ 0·63
8. 2.56.25·6	8. 2. 7·59	7·38	− 0·21	67.15.51·16	51·80	+ 0·64
11. 2.58.54·5	8.16.26·58	26·50	− 0·08	68. 0.46·73	46·40	− 0·33
20. 3. 4.48·4	....	...	...	70.43.13·90	14·40	+ 0·50
28. 3. 7.56·5	9.32.31·54	31·28	− 0·26	73.37. 9·89	10·80	+ 0·91
29. 3. 8.11·1	9.36.42·81	42·62	− 0·19	74. 0.32·48	32·40	− 0·08
30. 3. 8.23·9	9.40.52·20	52·01	− 0·19	74.24.14·26	13·20	− 1·06
July 3. 3. 8.50·6	9.53. 8·63	8·42	− 0·21	75.37. 2·94	2·90	− 0·04
4. 3. 8.55·5	9.57.10·11	9·99	− 0·12	76. 1.53·30	52·70	− 0·60
6. 3. 8.59·9	10. 5. 7·65	7·27	− 0·38	76.52.17·50	18·20	+ 0·70
13. 3. 8.13·3	10.31.56·84	56·43	− 0·41	79.55.41·05	34·60	− 6·45
Aug. 2. 2.56.45·6	11.39.18·39	18·08	− 0·31	89. 5.26·40	23·90	− 2·50
4. 2.54.45·9	....	...	...	89.59.53·16	50·70	− 2·46
9. 2.49. 0·2	....	...	...	92.13.37·63	31·80	− 5·83
16. 2.38.45·1	12.16.26·66	26·10	− 0·56	95.11.63·92	58·10	− 5·82
18. 2.35.16·4	12.20.50·51	50·11	− 0·40	96. 0.26·76	22·00	− 4·76
25. 2.20.46·7	12.33.54·29	53·71	− 0·58	98.37.19·22	10·60	− 8·62
30. 2. 7.46·6	12.40.34·92	34·25	− 0·67	....	...	...
31. 2. 4.52·3	12.41.36·69	35·91	− 0·78	100.30.66·67	59·70	− 6·97
Sept. 8. 1.37.23·7	12.45.35·98	34·85	− 1·13	102.20.43·62	39·40	− 4·22
20. 0.40.23·7	12.35.45·28	43·84	− 1·44	....	...	...
22. 0.29. 9·4	12.32.22·18	20·52	− 1·66	102.37.64·43	47·80	−16·63
25. 0.11.38·0	12.26.37·62	35·94	− 1·68	102. 5.49·22	33·90	−15·32
26. 0. 5.39·4	12.24.34·92	33·21	− 1·71	101.52.17·76	3·20	−14·56
26.23.59.38·8	....	...	...	101.37.31·87	15·00	−16·87
Oct. 5.23. 5.51·7	12. 4. 2·58	0·63	− 1·95	98.41.34·74	13·80	−20·94
7.22.54.35·4	12. 0.37·55	35·63	− 1·92	....	...	...
9.22.43.45·7	11.57.39·13	37·31	− 1·82	....	...	...
14.22.18.59·2	11.52.31·36	30·07	− 1·29	95.28.79·33	56·00	−23·33
19.21.57.51·2	11.51. 2·70	1·57	− 1·13	94. 3.38·30	21·50	−16·80
Nov. 8.21. 6.12·9	12.18. 6·96	6·06	− 0·90	92.30.64·76	55·40	− 9·36
14.20.58.12·5	12.33.44·63	44·10	− 0·53	93.12.62·07	54·20	− 7·87
15.20.57. 6·9	12.36.35·38	34·41	− 0·97	93.22.22·54	18·00	− 4·54
16.20.56. 4·3	12.39.29·12	28·32	− 0·80	93.32.25·71	19·10	− 6·61
25.20.49. 4·9	13. 7.57·60	56·82	− 0·78	95.26.48·37	44·30	− 4·07
Dec. 2.20.46. 8·4	13.32.36·51	35·56	− 0·95	97.19. 5·70	3·60	− 2·10
6.20.45.15·8	13.47.30·04	29·41	− 0·63	98.29.20·08	18·40	− 1·68
18.20.45.41·5	14.35.13·73	12·92	− 0·81	102.12. 7·02	5·70	− 1·32
19.20.45.54·0	14.39.23·66	23·01	− 0·65	102.30.50·31	49·00	− 1·31
23.20.47. 5·1	14.56.21·12	20·34	− 0·78	103.44.60·38	59·60	− 0·78
27.20.48.42·8	15.13.45·29	44·42	− 0·87	104.57.17·22	15·00	− 2·22

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of MARS.

Mean Solar Time of Observation.	R. A. from Observation.	Seconds of Tabular R. A.	Apparent Error of Tables in R. A.	N. P. D. from Observation.	Seconds of Tabular N. P. D.	Apparent Error of Tables in N. P. D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
Dec. 2. 18. 56. 56·6	11. 43. 6·78	6·47	— 0·31	86. 4. 17·00	11·20	— 5·80
12. 18. 36. 8·8	12. 1. 41·15	40·85	— 0·30	87. 57. 20·99	15·40	— 5·59
18. 18. 23. 9·9	12. 12. 19·49	19·14	— 0·35	89. 1. 49·62	43·70	— 5·92
19. 18. 20. 57·5	12. 14. 3·28	3·14	— 0·14	89. 12. 15·17	11·50	— 3·67
20. 18. 18. 44·7	12. 15. 46·73	46·44	— 0·29	89. 22. 37·97	34·10	— 3·87
30. 17. 55. 54·5	12. 32. 18·37	17·86	— 0·51	91. 1. 16·80	10·90	— 5·90

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of FLORA.

March 16. 10. 28. 53·5	10. 4. 38·34	...	...	70. 31. 58·49	...	...
30. 9. 26. 46·1	9. 57. 33·37	...	...	70. 4. 22·65	...	...
April 4. 9. 6. 0·9	9. 56. 27·65	...	...	70. 4. 24·01	...	...
17. 8. 15. 30·3	9. 57. 3·80	...	...	70. 25. 32·85	...	...
18. 8. 11. 48·9	9. 57. 18·32	...	...	70. 28. 18·75	...	...
19. 8. 8. 9·4	9. 57. 34·79	...	...	70. 31. 14·46	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of MELPOMENE.

April 4. 14. 18. 27·4	15. 9. 45·34	...	...	93. 30. 24·84	...	...
16. 13. 23. 14·6	15. 1. 42·06	36·41	— 5·65	92. 3. 42·93	23·41	—19·52
18. 13. 13. 46·2	14. 59. 65·28	59·78	— 5·50	91. 49. 25·51	8·67	—16·84
20. 13. 4. 14·6	14. 58. 25·18	19·48	— 5·70	91. 35. 44·89	5·84	(—39·05)
21. 12. 59. 27·6	14. 57. 33·94	28·08	— 5·86	91. 28. 27·18	9·90	—17·28
23. 12. 49. (51.)	....	...	...	91. 14. 50·54	31·03	—19·51
25. 12. 40. 11·7	14. 53. 61·13	55·50	— 5·63	91. 1. 30·01	11·93	—18·08
May 2. 12. 6. 11·1	14. 47. 30·77	25·04	— 5·73	90. 17. 72·26	54·98	—17·28
12. 11. 17. 29·6	14. 38. 6·83	1·07	— 5·76	89. 28. 20·07	1·19	—18·88
25. 10. 15. 27·1	14. 27. 9·38	4·07	— 5·31	88. 50. 48·77	32·30	—16·47
26. 10. 10. 47·3	14. 26. 25·43	...	...	88. 49. 20·21	...	...
June 2. 9. 38. 41·3	14. 21. 50·08	...	...	88. 44. 43·88	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of EUTERPE.

April 20. 13. 9. 26·3	15. 3. 37·71	31·94	— 5·77	105. 11. 36·30	9·54	—26·76
23. 12. 54. (51)	....	...	...	104. 59. 74·20	44·35	—29·85
25. 12. 45. 4·1	14. 58. 54·35	48·21	— 6·14	104. 51. 84·34	54·01	—30·33
May 2. 12. 10. 36·1	14. 51. 56·55	50·74	— 5·81	104. 23. 66·68	36·24	—30·44
4. 12. 0. 37·9	....	...	...	104. 15. 59·38	25·61	—33·77
12. 11. 21. 22·1	14. 41. 59·96	54·07	— 5·89	103. 43. 58·23	23·02	—35·21
23. 10. 28. 21·9	14. 32. 13·22	7·60	— 5·62	103. 4. 79·33	45·05	—34·28
25. 10. 18. 57·3	14. 30. 40·24	34·55	— 5·69	102. 58. 84·77	49·22	—35·55

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of VESTA.

July 20. 14. 6. 56·8	22. 0. 4·46	9·39	+ 4·93	108. 49. 36·46	8·50	—27·96
Aug. 3. 13. 1. 59·8	21. 50. 8·52	12·47	+ 3·95	110. 45. 44·80	15·20	—29·60
9. 12. 33. 5·8	21. 44. 49·14	53·34	+ 4·20	111. 34. 64·00	38·70	—25·30
13. 12. 13. 40·0	21. 41. 6·42	10·59	+ 4·17	112. 5. 80·37	53·80	—26·57
15. 12. 3. 56·2	21. 39. 14·09	18·24	+ 4·15	112. 20. 75·14	47·50	—27·64

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of VESTA—*concluded.*

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
Aug. 16. 11. 59. 4·4	21. 38. 18·05	22·13	+ 4·08	112. 28. 27·46	1·60	— 25·86
17. 11. 54. 12·7	21. 37. 22·05	26·18	+ 4·13	112. 35. 33·96	6·60	— 27·36
21. 11. 34. 49·1	21. 33. 41·54	45·67	+ 4·13	113. 1. 71·49	46·90	— 24·59
29. 10. 56. 34·0	21. 26. 52·57	56·61	+ 4·04	113. 46. 28·99	3·00	— 25·99
30. 10. 51. 51·5	21. 26. 5·88	9·85	+ 3·97	113. 50. 62·58	39·50	— 23·08
Sept. 1. 10. 42. 30·0	21. 24. 35·90	39·91	+ 4·01	113. 59. 35·09	13·90	— 21·19
3. 10. 33. 13·6	21. 23. 11·14	15·16	+ 4·02	114. 6. 74·33	56·30	— 18·03
4. 10. 28. 37·6	21. 22. 30·89	34·86	+ 3·97	114. 10. 47·62	27·80	— 19·82
5. 10. 24. 2·9	21. 21. 52·05	56·01	+ 3·96	114. 13. 66·38	46·20	— 20·18
6. 10. 19. 29·8	21. 21. 14·74	18·67	+ 3·93	114. 16. 72·52	51·50	— 21·02
7. 10. 14. 58·3	21. 20. 39·05	42·88	+ 3·83	114. 19. 64·99	43·60	— 21·39
11. 9. 57. 8·3	21. 18. 32·34	36·02	+ 3·68	114. 29. 21·55	1·60	— 19·95
12. 9. 52. 44·9	21. 18. 4·75	8·57	+ 3·82	114. 30. 68·67	48·80	— 19·87
19. 9. 22. 52·7	21. 15. 43·51	46·96	+ 3·45	114. 37. 46·06	27·40	— 18·66
20. 9. 18. 44·0	21. 15. 30·68	34·13	+ 3·45	114. 37. 52·24	35·80	— 16·44
22. 9. 10. 32·2	21. 15. 10·62	14·08	+ 3·46	114. 37. 33·10	17·90	— 15·20
24. 9. 2. 28·0	21. 14. 58·20	61·49	+ 3·29	114. 36. 29·08	14·80	— 14·28
25. 8. 58. 28·6	21. 14. 54·69	57·98	+ 3·29	114. 35. 41·60	26·80	— 14·80
26. 8. 54. 31·1	21. 14. 53·12	56·33	+ 3·21	114. 34. 43·86	28·10	— 15·76
28. 8. 46. 41·5	21. 14. 55·37	58·54	+ 3·17	114. 31. 72·43	59·10	— 13·33
Oct. 1. 8. 35. 10·8	21. 15. 12·43	15·49	+ 3·06	114. 26. 74·92	59·40	— 15·52
2. 8. 31. 24·1	21. 15. 21·67	24·73	+ 3·06	114. 24. 72·85	59·80	— 13·05
4. 8. 23. 56·0	21. 15. 45·45	48·54	+ 3·09	114. 20. 43·94	31·90	— 12·04
6. 8. 16. 35·0	21. 16. 16·32	19·34	+ 3·02	114. 15. 40·39	26·70	— 13·69
10. 8. 2. 13·3	21. 17. 38·55	41·49	+ 2·94	114. 3. 39·72	28·90	— 10·82
18. 7. 34. 47·9	21. 21. 40·99	43·47	+ 2·48	113. 32. 64·71	54·50	— 10·21
24. 7. 15. 15·5	21. 25. 44·78	46·98	+ 2·20	113. 4. 50·66	42·10	— 8·56

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of IRIS.

Dec. 6. 13. 2. 14·9	6. 3. 13·06	11·30	— 1·76	67. 3. 43·66	48·23	+ 4·57
12. 12. 32. 26·7	5. 56. 59·34	57·55	— 1·79	67. 31. 21·96	28·09	+ 6·13
13. 12. 27. 26·2	5. 55. 54·63	52·78	— 1·85	67. 36. 1·54	7·43	+ 5·89
18. 12. 2. 20·5	5. 50. 27·59	25·84	— 1·75	67. 59. 20·45	24·30	+ 3·85
21. 11. 47. 19·3	5. 47. 13·57	11·58	— 1·99	68. 13. 13·02	14·60	+ 1·58

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of METIS.

Mar. 6. 13. 40. 12·9	12. 37. 4·50	...	...	84. 34. 21·71	...	...
31. 11. 39. 0·5	12. 14. 6·02	5·47	— 0·55	82. 22. 26·00	25·50	— 0·50
April 9. 10. 55. 41·6	12. 6. 8·96	...	...	81. 53. 6·44	...	...
14. 10. 32. 11·1	12. 2. 17·42	...	...	81. 43. 16·58	...	...
17. 10. 18. 20·0	12. 0. 13·65	...	...	81. 39. 39·57	...	...
18. 10. 13. 45·5	11. 59. 35·01	...	...	81. 38. 51·97	...	...
20. 10. 4. (42)	....	...	...	81. 37. 49·48	...	...
21. 10. 0. 10·8	11. 57. 47·73	...	...	81. 37. 37·05	...	...
23. 9. 51. 15·1	11. 56. 43·56	...	...	81. 37. 45·34	...	...
25. 9. 42. 25·6	11. 55. 45·81	...	...	81. 38. 42·84	...	...
May 2. 9. 12. 20·8	11. 53. 11·95	...	...	81. 47. 53·24	...	...
8. 8. 47. 35·6	11. 52. 2·04	...	...	82. 2. 39·16	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of MASSILIA.

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
June 9. 14. 16. 16·8	19. 27. 47·08	...	...	....	...	...
28. 12. 45. 37·6	19. 11. 47·59	82·66	+35·07	111. 22. 55·30	10·67	− 44·63
July 20. 10. 57. 4·4	18. 49. 40·78	75·20	+34·42	111. 54. 46·16	19·07	− 27·09

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of HEBE.

Aug. 9. 13. 3. 45·3	22. 15. 33·66	29·68	− 3·98	103. 46. 26·53	28·28	+ 1·75
15. 12. 36. 25·5	22. 11. 48·67	44·58	− 4·09	105. 17. 48·82	46·82	− 2·00
16. 12. 31. (49.)	....	...	...	105. 33. 15·57	17·10	+ 1·53
17. 12. 27. 11·9	22. 10. 26·74	22·69	− 4·05	105. 48. 51·25	49·59	− 1·66
20. 12. 13. 17·4	22. 8. 19·64	15·46	− 4·18	106. 35. 32·05	30·77	− 1·28
21. 12. 8. 38·3	22. 7. 36·30	32·22	− 4·08	106. 51. 2·10	2·48	+ 0·38
29. 11. 31. 22·8	22. 1. 47·15	42·79	− 4·36	108. 52. 19·82	18·95	− 0·87
Sept. 1. 11. 17. 28·3	21. 59. 39·97	35·68	− 4·29	109. 35. 25·74	26·66	+ 0·92
6. 10. 54. 30·9	21. 56. 21·57	17·40	− 4·17	110. 43. 1·43	0·61	− 0·82
7. 10. 49. 58·1	21. 55. 44·61	...	...	110. 55. 47·67	...	...
10. 10. 36. 27·1	21. 54. 1·00	...	...	111. 32. 24·31	...	...
12. 10. 27. 32·9	21. 52. 58·46	...	...	111. 55. 15·16	...	...
19. 9. 57. 13·2	21. 50. 9·67	...	...	113. 5. 15·84	...	...
20. 9. 53. 0·1	21. 49. 52·44	...	...	113. 13. 53·28	...	...
24. 9. 36. 27·1	21. 49. 2·95	...	...	113. 45. 2·21	...	...
26. 9. 28. 23·1	21. 48. 49·98	...	...	113. 58. 35·36	...	...
Oct. 4. 8. 57. 23·9	21. 49. 18·84	...	...	114. 39. 9·58	...	...
6. 8. 49. 59·8	21. 49. 46·60	...	...	114. 46. 1·52	...	...
8. 8. 42. 44·1	21. 50. 22·84	...	...	114. 51. 36·94	...	...
19. 8. 5. 10·5	21. 56. 5·16	...	...	115. 0. 40·55	...	...
Nov. 8. 7. 5. 56·4	22. 15. 32·50	...	...	....	...	...
10. 7. 0. 33·3	22. 18. 1·56	...	...	113. 45. 26·41	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of LUTETIA.

June 11. 11. 25. 3·8	16. 43. 59·04	60·97	+ 1·93	111. 51. 53·18	57·86	+ 4·68
13. 11. 15. 9·0	16. 41. 55·73	57·90	+ 2·17	111. 51. 37·38	44·91	+ 7·53
19. 10. 45. 42·0	16. 36. 3·23	5·33	+ 2·10	111. 51. 4·58	8·99	+ 4·41
20. 10. 40. 50·7	16. 35. 7·74	9·89	+ 2·15	111. 51. 2·44	4·99	+ 2·55
26. 10. 12. 10·1	16. 30. 1·72	...	...	111. 51. 2·99	...	...
30. 9. 53. 32·6	16. 27. 7·42	...	...	111. 51. 42·06	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of FORTUNA.

April 25. 13. 40. 51·5	15. 54. 50·88	...	...	109. 31. 20·52	...	...
June 11. 9. 54. 36·0	15. 13. 16·41	...	...	106. 46. 7·34	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of PARTHENOPE.

Nov. 1. 12. 43. 53·9	3. 26. 49·57	48·80	− 0·77	78. 58. 33·35	34·96	+ 1·61
3. 12. 34. (8.)	....	...	...	79. 6. 2·35	7·54	+ 5·19
Dec. 12. 9. 27. 47·5	2. 51. 49·87	...	...	80. 21. 39·01	...	...
15. 9. 14. 40·5	2. 50. 30·37	...	...	80. 19. 2·50	...	...
18. 9. 1. 49·6	2. 49. 26·98	...	...	80. 15. 12·42	...	...
19. 8. 57. 35·0	2. 49. 8·29	...	...	80. 13. 32·12	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of AMPHITRITE.

Mean Solar Time of Observation.	R. A. from Observation.	Seconds of Tabular R. A.	Apparent Error of Tables in R. A.	N. P. D. from Observation.	Seconds of Tabular N. P. D.	Apparent Error of Tables in N. P. D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
July 20. 12. 1. 50·1	19. 54. 37·13	19·88	−17·25	119. 40. 6·28	39·11	+32·83
Aug. 2. 10. 57. 32·8	19. 41. 24·53	7·34	−17·19	119. 47. 34·08	61·12	+27·04
21. 9. 28. 48·1	19. 27. 19·82	3·27	−16·55	119. 21. 0·92	27·43	+26·51

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ASTRÆA.

March 17. 13. 58. 17·5	13. 38. 34·15	31·71	− 2·44	92. 42. 9·75	3·00	− 6·75
31. 12. 53. 45·0	13. 29. 2·82	0·62	− 2·20	....	...	...
April 4. 12. 34. 47·6	13. 25. 48·44	46·62	− 1·82	90. 33. 60·28	54·76	− 5·52
9. 12. 10. 58·4	13. 21. 38·13	36·29	− 1·84	90. 0. 12·72	5·73	− 6·99
16. 11. 37. 39·9	13. 15. 50·05	48·33	− 1·72	89. 17. 40·65	35·97	− 4·68
18. 11. 28. 12·5	13. 14. 14·18	12·52	− 1·66	89. 6. 47·65	49·04	+ 1·39
20. 11. 18. (48.)	....	...	...	88. 56. 46·04	44·13	− 1·91
25. 10. 55. 30·5	13. 9. 2·74	1·29	− 1·45	88. 34. 51·65	51·19	− 0·46
May 1. 10. 28. 9·0	13. 5. 16·06	14·83	− 1·23	88. 15. 22·25	20·84	− 1·41
2. 10. 23. 39·7	13. 4. 42·61	41·40	− 1·21	88. 12. 52·44	50·45	− 1·99
4. 10. 14. 45·4	13. 3. 39·87	38·55	− 1·32	88. 8. 27·40	28·21	+ 0·81
5. 10. 10. 20·2	13. 3. 10·57	9·15	− 1·42	88. 6. 37·93	36·56	− 1·37
8. 9. 57. 12·8	13. 1. 50·71	...	...	88. 1. 47·06	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of IRENE.

April 13. 13. 14. 40·5	14. 41. 16·94	...	...	91. 29. 51·82	...	...
18. 12. 50. 49·4	14. 37. 4·67	7·34	+ 2·67	91. 17. 59·64	74·66	+15·02
20. 12. 41. 11·5	14. 35. 18·33	20·81	+ 2·48	91. 14. 8·47	22·08	+13·61
21. 12. 36. 21·5	14. 34. 24·09	26·64	+ 2·55	91. 12. 23·66	37·61	+13·98
23. 12. 26. (40.)	....	...	...	91. 9. 20·98	33·93	+12·95
25. 12. 16. 57·8	14. 30. 43·36	45·83	+ 2·47	91. 6. 51·51	65·56	+14·05
May 2. 11. 42. 57·5	14. 24. 13·39	15·84	+ 2·45	91. 3. 19·85	33·81	+13·96
4. 11. 33. 16·9	14. 22. 24·27	26·62	+ 2·35	91. 3. 52·88	67·42	+14·54
18. 10. 26. 59·0	14. 11. 7·36	9·82	+ 2·46	91. 28. 54·04	63·16	+ 9·12
23. 10. 4. 15·4	14. 8. 2·73	4·92	+ 2·19	91. 46. 46·06	58·01	+11·95
25. 9. 55. 20·4	14. 6. 59·42	...	...	91. 55. 15·92	...	...

RIGHT ASCENSION and NORTH POLAR DISTANCE of FIDES.

Nov. 10. 8. 32. 53·8	23. 50. 37·27	...	...	90. 13. 38·53	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of PROSERPINE.

Dec. 6. 11. 30. 47·1	4. 31. 30·31	50·21	+19·90	65. 42. 55·15	1·88	−53·27
19. 10. 27. 16·4	4. 19. 4·35	19·93	+15·58	65. 59. 100·91	52·81	−48·10

RIGHT ASCENSION and NORTH POLAR DISTANCE of CIRCE.

April 18. 11. 44. 17·3	13. 30. 21·59	...	...	96. 2. 51·72	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of JUNO.

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
April 13. 14. 54. 9·9	16. 21. 2·64	7·06	+ 4·42	95. 59. 57·27	57·10	− 0·17
17. 14. 36. 46·3	16. 19. 22·45	26·91	+ 4·46	95. 37. 4·22	7·50	+ 3·28
18. 14. 32. 22·6	16. 18. 54·55	58·96	+ 4·41	95. 31. 21·64	25·00	+ 3·36
20. 14. 23. 31·3	16. 17. 54·95	59·66	+ 4·71	....	...	...
21. 14. 19. 4·1	16. 17. 23·63	28·37	+ 4·74	95. 14. 17·10	20·30	+ 3·20
25. 14. 1. 5·6	16. 15. 8·33	12·76	+ 4·43	94. 51. 47·38	49·40	+ 2·02
May 2. 13. 29. 1·1	16. 10. 34·39	39·26	+ 4·87	94. 13. 42·38	45·10	+ 2·72
4. 13. 19. 44·2	16. 9. 9·13	13·77	+ 4·64	94. 3. 17·87	19·40	+ 1·53
14. 12. 32. 42·6	16. 1. 25·30	30·07	+ 4·77	93. 15. 33·66	34·80	+ 1·14
28. 11. 26. 11·4	15. 49. 55·05	59·93	+ 4·88	92. 26. 5·19	5·20	+ 0·01
June 2. 11. 2. 34·5	15. 45. 57·07	61·72	+ 4·65	92. 14. 30·73	30·40	− 0·33
11. 10. 20. 37·5	15. 39. 22·19	26·64	+ 4·45	92. 2. 33·15	32·40	− 0·75
13. 10. 11. 26·0	15. 38. 2·25	6·75	+ 4·50	92. 1. 26·53	27·80	+ 1·27
19. 9. 44. 13·0	15. 34. 24·17	28·48	+ 4·31	92. 1. 42·01	40·10	− 1·91
20. 9. 39. 44·2	15. 33. 51·17	55·48	+ 4·31	92. 2. 14·61	11·60	− 3·01

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CERES.

Sept. 25. 14. 41. 12·6	2. 58. 35·00	51·99	+16·99	85. 5. 157·27	45·60	−111·67
26. 14. 36. 55·5	2. 58. 13·81	31·04	+17·23	85. 8. 141·69	25·40	−116·29
Oct. 15. 13. 11. (18.)	....	...	...	86. 3. 162·65	42·80	−119·85
26. 12. 18. 51·8	2. 38. 4·03	23·14	+19·11	86. 32. 181·06	57·30	−123·76
Nov. 1. 11. 49. 50·7	2. 32. 37·50	56·51	+19·01	84. 45. 150·43	26·00	−124·43
6. 11. 25. 37·2	2. 28. 2·79	21·84	+19·05	86. 53. 132·52	8·60	−123·92
10. 11. 6. (18.)	....	...	...	86. 57. 135·62	12·80	−122·82
30. 9. 32. 32·1	2. 9. 26·53	44·07	+17·54	86. 44. 131·00	17·20	−113·80
Dec. 6. 9. 6. 6·4	2. 6. 25·77	42·72	+16·95	86. 29. 111·67	1·80	−109·87
8. 8. 57. 26·1	2. 5. 37·19	53·50	+16·31	86. 22. 160·17	47·80	−112·37
12. 8. 40. 21·8	2. 4. 16·34	32·67	+16·33	86. 8. 144·62	39·50	−105·12
18. 8. 15. 30·9	2. 3. 0·68	16·33	+15·65	85. 43. 132·73	28·60	−104·13
19. 8. 11. 27·7	2. 2. 53·35	68·87	+15·52	85. 38. 154·45	50·50	−103·95
20. 8. 7. 25·9	2. 2. 47·52	62·90	+15·38	85. 34. 108·56	5·30	−103·26
21. 8. 3. 25·8	2. 2. 43·28	58·43	+15·15	85. 29. 114·35	13·00	−101·35
22. 7. 59. 27·0	2. 2. 40·43	55·44	+15·01	85. 24. 112·15	13·90	− 98·25

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of PALLAS.

Aug. 9. 14. 30. 55·0	23. 42. 57·66	58·03	+ 0·37	84. 59. 70·85	42·80	−28·05
13. 14. 13. 39·7	23. 41. 25·83	26·28	+ 0·45	85. 35. 36·73	8·80	−27·93
15. 14. 4. 55·7	23. 40. 33·45	33·87	+ 0·42	85. 54. 38·83	9·90	−28·93
16. 14. 0. 32·1	23. 40. 5·74	6·09	+ 0·35	86. 3. 89·03	59·60	−29·43
17. 13. 56. 7·4	23. 39. 36·86	37·28	+ 0·42	86. 14. 29·33	2·00	−27·33
21. 13. 38. 19·0	23. 37. 31·73	32·20	+ 0·47	86. 56. 41·75	13·60	−28·15
24. 13. 24. 48·1	23. 35. 48·23	48·72	+ 0·49	87. 29. 84·61	55·10	−29·51
28. 13. 6. 35·3	23. 33. 18·71	19·18	+ 0·47	88. 17. 49·92	20·70	−29·22
Sept. 1. 12. 48. 11·2	23. 30. 37·78	38·14	+ 0·36	89. 7. 48·53	20·10	−28·43
7. 12. 20. 18·2	23. 26. 19·53	19·96	+ 0·43	90. 26. 43·94	14·90	−29·04
10. 12. 6. 16·6	23. 24. 5·26	5·78	+ 0·52	91. 7. 32·63	1·80	−30·83
12. 11. 56. 54·5	23. 22. 34·77	35·27	+ 0·50	91. 34. 63·71	33·10	−30·61
19. 11. 24. 6·7	23. 17. 17·42	17·88	+ 0·46	93. 11. 79·34	48·30	−31·04
20. 11. 19. 26·1	23. 16. 32·62	33·12	+ 0·50	93. 25. 72·38	41·50	−30·88
22. 11. 10. 6·0	23. 15. 4·08	4·47	+ 0·39	93. 53. 48·28	22·00	−26·28
24. 11. 0. 47·3	23. 13. 37·00	37·30	+ 0·30	94. 20. 78·79	51·20	−27·59

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of PALLAS—*concluded.*

Mean Solar Time of Observation.	R. A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1855. d h m s	h s	s	s	° ′ ″	″	″
Oct. 4. 10. 14. 47·3	23. 6. 54·98	55·46	+ 0·48	96. 33. 38·59	8·30	−30·29
18. 9. 12. 52·8	23. 0. 2·09	2·37	+ 0·28	99. 13. 78·74	50·40	−28·34
24. 8. 47. 30·8	22. 58. 15·23	15·58	+ 0·35	100. 11. 29·88	2·00	−27·88
27. 8. 35. 7·3	22. 57. 39·30	39·56	+ 0·26	100. 36. 73·08	45·80	−27·28
Nov. 10. 7. 39. 54·1	22. 57. 28·85	29·11	+ 0·26	102. 11. 38·89	14·70	−24·19
15. 7. 21. 13·3	22. 58. 27·78	28·18	+ 0·40	102. 35. 23·81	0·10	−23·71

RIGHT ASCENSION and NORTH POLAR DISTANCE of BELLONA.

June 30. 11. 28. 8·8	18. 1. 59·16	47·29	−11·87	102. 35. 45·05	34·47	−10·58

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CALLIOPE.

June 11. 11. 0. 49·6	16. 19. 40·85	35·55	− 5·30	113. 6. 62·35	28·93	−33·42
13. 10. 51. 11·8	16. 17. 54·62	49·49	− 5·13	113. 8. 94·55	45·69	−48·86

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of PSYCHE.

Dec. 15. 10. 13. 29·8	3. 49. 29·33	...	...	74. 42. 8·64	...	...
18. 9. 59. 49·6	3. 47. 36·55	...	...	74. 44. 28·99	...	...
21. 9. 46. 21·6	3. 45. 55·94	...	...	74. 46. 5·27	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of HYGEIA.

April 18. 13. 34. 45·3	15. 21. 7·81	7·73	− 0·08	113. 39. 26·02	24·65	− 1·37
20. 13. 25. 38·6	15. 19. 52·74	52·56	− 0·18	113. 35. 32·92	30·56	− 2·36
21. 13. 21. 3·8	15. 19. 13·71	13·03	− 0·68	113. 33. 23·33	21·87	− 1·46
25. 13. 2. 35·0	15. 16. 28·11	27·94	− 0·17	113. 23. 51·01	48·11	− 2·90
May 2. 12. 29. 47·4	15. 11. 11·02	10·88	− 0·14	113. 3. 4·18	2·91	− 1·27
4. 12. 20. 21·5	15. 9. 36·68	35·89	− 0·79	112. 56. 17·94	16·48	− 1·46
24. 10. 46. 8·6	14. 53. 59·40	59·14	− 0·26	111. 35. 27·57	24·70	− 2·87
25. 10. 41. 31·2	14. 53. 17·83	17·51	− 0·32	111. 31. 9·00	6·82	− 2·18

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of JUPITER.

July 4. 15. 28. 32·5	22. 18. 48·55	49·34	+ 0·79	101. 39. 16·50	15·30	− 1·20
13. 14. 51. 19·0	22. 16. 58·02	58·43	+ 0·41	101. 52. 11·97	17·70	+ 5·73
20. 14. 21. 44·2	22. 14. 54·20	55·05	+ 0·85	102. 5. 47·49	44·90	− 2·59
Aug. 3. 13. 21. 14·7	....	...	...	102. 39. 26·55	24·20	− 2·35
9. 12. 54. 53·7	22. 6. 40·62	41·09	+ 0·47	102. 55. 44·74	43·20	− 1·54
10. 12. 50. 29·1	22. 6. 11·83	12·37	+ 0·54	102. 58. 35·31	30·30	− 5·01

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of JUPITER—*concluded.*

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
Aug. 13. 12. 37. 14·1	22. 4. 44·34	44·81	+ 0·47	103. 6. 57·50	55·70	— 1·80
15. 12. 28. 23·1	22. 3. 44·96	45·50	+ 0·54	103. 12. 39·86	34·90	— 4·96
16. 12. 23. 57·4	22. 3. 15·14	15·63	+ 0·49	103. 15. 25·77	24·70	— 1·07
17. 12. 19. 31·6	22. 2. 45·16	45·64	+ 0·48	103. 18. 17·13	14·60	— 2·53
20. 12. 6. 13·7	22. 1. 14·77	15·25	+ 0·48	103. 26. 45·50	42·90	— 2·60
21. 12. 1. 47·7	22. 0. 44·54	45·04	+ 0·50	103. 29. 33·99	31·50	— 2·49
24. 11. 48. 29·8	21. 59. 14·10	14·50	+ 0·40	103. 37. 57·81	53·00	— 4·81
28. 11. 30. 46·7	21. 57. 14·32	14·81	+ 0·49	103. 48. 50·99	47·40	— 3·59
29. 11. 26. 21·4	21. 56. 44·91	45·20	+ 0·29	103. 51. 29·81	27·70	— 2·11
30. 11. 21. 56·1	21. 56. 15·44	15·78	+ 0·34	103. 54. 8·40	6·40	— 2·00
31. 11. 17. 31·1	21. 55. 46·24	46·54	+ 0·30	103. 56. 44·57	43·60	— 0·97
Sept. 1. 11. 13. 6·1	21. 55. 17·11	17·51	+ 0·40	103. 59. 19·20	19·00	— 0·20
3. 11. 4. 17·1	21. 54. 19·76	20·19	+ 0·43	104. 4. 23·67	24·20	+ 0·53
6. 10. 51. 5·7	21. 52. 55·83	56·35	+ 0·52	104. 11. 47·62	46·30	— 1·32
7. 10. 46. 42·7	21. 52. 28·69	29·05	+ 0·36	104. 14. 11·16	9·10	— 2·06
8. 10. 42. 20·2	21. 52. 1·96	2·11	+ 0·15	104. 16. 25·60	29·40	+ 3·80
10. 10. 33. 35·5	21. 51. 8·97	9·41	+ 0·44	104. 21. 5·85	2·40	— 3·45
11. 10. 29. 14·0	21. 50. 43·30	43·68	+ 0·38	104. 23. 16·12	14·80	— 1·32
12. 10. 24. 52·9	21. 50. 17·99	18·40	+ 0·41	104. 25. 25·35	24·50	— 0·85
13. 10. 20. 32·3	21. 49. 53·23	53·59	+ 0·36	104. 27. 32·94	31·20	— 1·74
19. 9. 54. 39·0	21. 47. 35·04	35·38	+ 0·34	104. 39. 8·76	6·40	— 2·36
20. 9. 50. 22·0	21. 47. 13·93	14·28	+ 0·35	104. 40. 51·22	50·70	— 0·52
21. 9. 46. 5·7	21. 46. 53·41	53·76	+ 0·35	104. 42. 33·18	31·70	— 1·48
22. 9. 41. 49·9	21. 46. 33·51	33·86	+ 0·35	104. 44. 9·90	9·10	— 0·80
24. 9. 33. 20·3	21. 45. 55·64	55·90	+ 0·26	104. 47. 13·85	13·20	— 0·65
25. 9. 29. 6·3	21. 45. 37·51	37·88	+ 0·37	....	...	...
26. 9. 24. 53·2	21. 45. 20·25	20·51	+ 0·26	104. 50. 5·56	2·90	— 2·66
Oct. 1. 9. 3. 57·0	21. 44. 3·41	3·77	+ 0·36	104. 56. 2·85	2·00	— 0·85
2. 8. 59. 51·0	21. 43. 50·26	50·50	+ 0·24	104. 57. 3·26	2·50	— 0·76
4. 8. 51. 31·9	21. 43. 25·86	26·12	+ 0·26	104. 58. 52·47	51·70	— 0·77
6. 8. 43. 18·5	21. 43. 4·27	4·69	+ 0·42	105. 0. 27·27	25·30	— 1·97
8. 8. 35. 8·6	21. 42. 46·07	46·26	+ 0·19	105. 1. 42·89	42·90	+ 0·01
10. 8. 27. 1·4	21. 42. 30·68	30·87	+ 0·19	105. 2. 47·55	44·50	— 3·05
18. 7. 55. 3·9	21. 42. 0·37	0·47	+ 0·10	105. 4. 9·66	8·70	— 0·96
19. 7. 51. 7·7	21. 42. 0·02	0·21	+ 0·19	105. 4. 2·15	0·90	— 1·25
24. 7. 31. 38·5	21. 42. 10·46	10·69	+ 0·23	105. 2. 21·67	21·50	— 0·17
27. 7. 20. 6·5	21. 42. 26·21	26·34	+ 0·13	105. 0. 35·48	34·00	— 1·48
Nov. 6. 6. 42. 28.8	21. 44. 7·93	8·28	+ 0·35	....	...	...
10. 6. 27. 46·9	21. 45. 9·78	9·98	+ 0·20	104. 44. 31·10	29·80	— 1·30
15. 6. 9. 40·4	21. 46. 43·06	43·25	+ 0·19	104. 35. 46·75	45·90	— 0·85
22. 5. 44. 47·8	21. 49. 22·28	22·42	+ 0·14	104. 21. 2·06	1·80	— 0·26
28. 5. 23. 53·1	21. 52. 3·52	3·63	+ 0·11	104. 6. 10·86	11·00	+ 0·14
30. 5. 16. 59·6	21. 53. 2·01	2·18	+ 0·17	104. 0. 48·50	47·90	— 0·60
Dec. 5. 4. 59. 56·0	21. 55. 38·36	38·52	+ 0·16	103. 46. 24·61	24·30	— 0·31
6. 4. 56. 32·9	21. 56. 11·32	11·44	+ 0·12	103. 43. 23·27	22·20	— 1·07
7. 4. 53. 10·5	21. 56. 44·93	44·90	— 0·03	103. 40. 17·56	17·00	— 0·56
8. 4. 49. 48·4	21. 57. 18·81	18·89	+ 0·08	103. 37. 9·50	8·70	— 0·80

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of SATURN.

Jan. 10. 9. 13. 59·5	4. 33. 16·82	17·29	+ 0·47	69. 45. 40·07	30·70	— 9·37
15. 8. 53. 18·9	4. 32. 15·54	15·84	+ 0·30	69. 46. 39·92	32·50	— 7·42
17. 8. 45. 5·4	4. 31. 53·82	54·09	+ 0·27	69. 46. 55·61	50·80	— 4·81
19. 8. 36. 53·5	4. 31. 33·72	34·02	+ 0·30	69. 47. 12·03	5·20	— 6·83
Feb. 10. 7. 8. 42·5	4. 29. 52·48	52·85	+ 0·37	69. 45. 22·19	12·50	— 9·69
14. 6. 53. 5·1	4. 29. 58·70	58·89	+ 0·19	69. 43. 65·34	57·80	— 7·54
15. 6. 49. 11·8	4. 30. 1·34	1·60	+ 0·26	69. 43. 43·23	36·60	— 6·63

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of SATURN—*concluded.*

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
Feb. 16. 6. 45. 19·1	4. 30. 4·58	4·78	+ 0·20	69. 43. 21·72	14·30	— 7·42
17. 6. 41. 26·8	4. 30. 8·17	8·44	+ 0·27	69. 42. 58·80	51·00	— 7·80
20. 6. 29. 52·8	4. 30. 21·89	22·26	+ 0·37	69. 41. 41·34	35·20	— 6·14
22. 6. 22. 12·6	4. 30. 33·55	33·83	+ 0·28	69. 40. 47·55	39·70	— 7·85
23. 6. 18. 23·1	4. 30. 39·97	40·31	+ 0·34	69. 40. 17·23	10·50	— 6·73
March 3. 5. 48. 4·1	4. 31. 48·42	48·62	+ 0·20	69. 35. 50·88	44·60	— 6·28
7. 5. 33. 5·1	4. 32. 33·17	33·44	+ 0·27	69. 33. 18·39	11·30	— 7·09
8. 5. 29. 21·4	4. 32. 45·46	45·72	+ 0·26	69. 32. 36·05	31·00	— 5·05
Oct. 2. 17. 14. 26·7	5. 59. 50·19	50·52	+ 0·33	67. 46. 11·57	8·90	— 2·67
Dec. 5. 12. 52. 40·8	5. 49. 40·88	41·38	+ 0·50	67. 48. 4·72	2·50	— 2·22
6. 12. 48. 24·4	5. 49. 20·37	20·95	+ 0·58	67. 48. 9·26	4·00	— 5·26
12. 12. 22. 44·0	5. 47. 15·06	15·71	+ 0·65	67. 48. 15·82	13·40	— 2·42
13. 12. 18. 27·0	5. 46. 53·88	54·51	+ 0·63	67. 48. 21·91	15·00	— 6·91
18. 11. 57. 1·1	5. 45. 7·25	7·85	+ 0·60	67. 48. 26·98	23·40	— 3·58
19. 11. 52. 43·8	5. 44. 45·81	46·47	+ 0·66	67. 48. 29·69	25·10	— 4·59
21. 11. 44. 9·5	5. 44. 3·23	3·78	+ 0·55	67. 48. 33·74	28·60	— 5·14
24. 11. 31. 18·2	5. 42. 59·52	60·06	+ 0·54	67. 48. 37·75	33·70	— 4·05
26. 11. 22. 44·2	5. 42. 17·24	17·93	+ 0·69	67. 48. 40·37	37·10	— 3·27
27. 11. 18. 27·5	5. 41. 56·39	57·01	+ 0·62	67. 48. 44·10	38·70	— 5·40
28. 11. 14. 10·9	5. 41. 35·62	36·19	+ 0·57	67. 48. 45·95	40·30	— 5·65

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of URANUS.

Jan. 17. 6. 54. 56·4	2. 41. 26·73	39·22	+12·49	74. 40. 69·95	14·60	—55·35
19. 6. 47. 3·3	2. 41. 25·60	38·21	+12·61	74. 40. 74·31	15·90	—58·41
Sept. 25. 14. 55. 3·1	3. 12. 27·78	41·41	+13·63	72. 25. 103·89	50·10	—53·79
26. 14. 51. 5·0	3. 12. 22·20	35·62	+13·42	72. 26. 70·64	13·20	—57·44
Oct. 15. 13. 34. 0·7	3. 10. 3·19	17·11	+13·92	72. 35. 81·98	25·10	—56·88
19. 13. 17. 42·4	3. 9. 28·39	42·17	+13·78	72. 37. 100·62	44·70	—55·92
20. 13. 13. 37·6	3. 9. 19·60	33·19	+13·59	72. 38. 74·04	20·60	—53 44
26. 12. 49. 6·5	3. 8. 23·68	37·57	+13·89	72. 42. 59·75	3·00	—56·75
Nov. 1. 12. 24. 33·6	3. 7. 25·65	39·53	+13·88	72. 45. 113·72	55·80	—57·92
3. 12. 16. 21·7	....	...	...	72. 47. 72·66	15·00	—57·66
6. 12. 4. 4·2	3. 6. 36·09	49·93	+13·84	72. 49. 74·09	15·00	—59·09
8. 11. 55. 52·3	3. 6. 15·99	29·91	+13·92	72. 50. 91·91	35·60	—56·31
30. 10. 25. 47·6	3. 2. 40·74	54·48	+13·74	73. 5. 62·96	5·90	—57·06
Dec. 6. 10. 1. 18·7	3. 1. 47·18	60·78	+13·60	73. 8. 100·68	43·40	—57·28
12. 9. 36. 53·5	3. 0. 57·35	70·93	+13·58	73. 12. 63·34	5·20	—58·14
13. 9. 32. 49·9	3. 0. 49·55	63·05	+13·50	73. 12. 93·89	37·10	—56·79
15. 9. 24. 42·7	3. 0. 34·15	47·69	+13·54	73. 13. 97·05	39·10	—57·95
18. 9. 12. 33·1	3. 0. 12·27	25·72	+13·45	73. 15. 65·57	7·70	—57·87
19. 9. 8. 30·2	3. 0. 5·22	18·68	+13·46	73. 15. 93·47	36·00	—57·47
20. 9. 4. 27·4	2. 59. 58·36	71·80	+13·44	73. 16. 59·87	3·70	—56·17
22. 8. 56. 22·3	2. 59. 45·08	58·50	+13·42	73. 16. 114·28	57·20	—57·08
27. 8. 36. 12·4	2. 59. 14·64	28·09	+13·45	73. 18. 116·62	58·80	—57·82
31. 8. 20. 7·6	2. 58. 53·45	66·85	+13·40	73. 20. 79·92	23·10	—56·82

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of NEPTUNE.

July 31. 14. 40. 10·5	23. 16. 45·72	45·96	+ 0·24	95. 49. 58·92	58·44	— 0·48
Aug. 3. 14. 28. 9·6	23. 16. 32·49	32·77	+ 0·28	95. 51. 30·36	28·52	— 1·84
9. 14. 4. 5·8	23. 16. 4·09	4·25	+ 0·16	95. 54. 41·61	41·12	— 0·49
13. 13. 48. 1·8	23. 15. 43·68	43·85	+ 0·17	95. 56. 57·45	57·49	+ 0·04

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of NEPTUNE—*concluded.*

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of Tabular R.A.	Apparent Error of Tables in R.A.	N.P.D. from Observation.	Seconds of Tabular N.P.D.	Apparent Error of Tables in N.P.D.
1855. d h m s	h m s	s	s	° ′ ″	″	″
Aug. 15. 13. 39. 59·4	23. 15. 33·03	33·29	+ 0·26	95. 58. 8·23	7·78	— 0·45
16. 13. 35. 58·3	23. 15. 27·89	27·91	+ 0·02	95. 58. 44·75	43·44	— 1·31
17. 13. 31. 56·8	23. 15. 22·30	22·48	+ 0·18	95. 59. 20·84	19·40	— 1·44
21. 13. 15. 51·0	23. 15. 0·03	0·24	+ 0·21	96. 1. 46·10	45·88	— 0·22
24. 13. 3. 46·3	23. 14. 42·96	43·12	+ 0·16	96. 3. 39·87	38·19	— 1·68
28. 12. 47. 39·4	23. 14. 19·66	19·74	+ 0·08	96. 6. 11·68	10·82	— 0·86
30. 12. 39. 35·7	23. 14. 7·81	7·86	+ 0·05	96. 7. 29·80	28·04	— 1·76
Sept. 1. 12. 31. 31·9	23. 13. 55·78	55·89	+ 0·11	96. 8. 46·08	45·66	— 0·42
3. 12. 23. 28·0	23. 13. 43·63	43·83	+ 0·20	96. 10. 6·19	3·72	— 2·47
6. 12. 11. 22·3	23. 13. 25·60	25·63	+ 0·03	96. 11. 59·03	61·03	+ 2·00
7. 12. 7. 20·3	23. 13. 19·51	19·53	+ 0·02	96. 12. 39·54	40·34	+ 0·80
8. 12. 3. 17·5	23. 13. 13·59	13·43	— 0·16	96. 13. 16·49	19·46	+ 2·97
10. 11. 55. 14·5	23. 13. 1·33	1·24	— 0·09	96. 14. 38·93	37·57	— 1·36
11. 11. 51. 12·5	23. 12. 55·22	55·12	— 0·10	96. 15. 18·42	16·68	— 1·74
12. 11. 47. 10·3	23. 12. 48·95	49·03	+ 0·08	96. 15. 55·65	55·59	— 0·06
19. 11. 18. 56·7	23. 12. 6·58	6·61	+ 0·03	96. 20. 26·68	25·25	— 1·43
20. 11. 14. 54·7	23. 12. 0·48	0·64	+ 0·16	96. 21. 3·59	3·07	— 0·52
24. 10. 58. 47·6	23. 11. 36·99	36·96	— 0·03	96. 23. 28·89	32·32	+ 3·43
25. 10. 54. 45·9	23. 11. 31·14	31·13	— 0·01	96. 24. 6·63	8·94	+ 2·31
Oct. 4. 10. 18. 32·2	23. 10. 40·49	40·42	— 0·07	96. 29. 25·48	25·31	— 0·17
18. 9. 22. 20·6	23. 9. 31·39	31·03	— 0·36	96. 36. 29·79	31·01	+ 1·22
19. 9. 18. 20·1	23. 9. 26·78	26·67	— 0·11	96. 36. 55·87	57·39	+ 1·52
24. 8. 58. 20·1	23. 9. 6·29	6·11	— 0·18	96. 39. 0·68	0·89	+ 0·21
27. 8. 46. 21·2	23. 8. 55·03	54·86	— 0·17	96. 40. 5·50	7·82	+ 2·32
Nov. 10. 7. 50. 38·5	23. 8. 14·98	14·77	— 0·21	96. 43. 58·91	58·70	— 0·21
15. 7. 30. 50·1	23. 8. 6·16	5·90	— 0·26	96. 44. 44·37	46·02	+ 1·65
22. 7. 3. 11·3	23. 7. 58·72	58·56	— 0·16	96. 45. 17·95	19·73	+ 1·78
28. 6. 39. 34·5	23. 7. 57·38	57·20	— 0·18	96. 45. 15·87	16·83	+ 0·96
30. 6. 31. 43·3	23. 7. 58·00	57·71	— 0·29	96. 45. 8·83	10·45	+ 1·62
Dec. 7. 6. 4. 17·8	23. 8. 3·85	3·73	— 0·12	96. 44. 17·75	19·59	+ 1·84
12. 5. 44. 46·2	23. 8. 11·84	11·79	— 0·05	96. 43. 18·70	19·88	+ 1·18

INVESTIGATION of the POSITION of the ECLIPTIC, from the OBSERVATIONS of the SUN.

Mean Tabular Errors of the Sun in R.A. and N.P.D.; and Errors in Ecliptic Polar Distance, deduced from the Formula,

Error in Ecliptic North Polar Distance = R × Error in R.A. + S × Error in N.P.D.

Extent of Group.	Mean Day, 1855.	Error in R.A.	Number of Obs.	Error in N.P.D.	Number of Obs.	Error in Ecliptic N.P.D.
		s		"		"
January 5 to January 27	January 17	− 0·15	3	− 0·31	3	− 0·709
February 10 to March 1	February 19	− 0·34	9	+ 1·66	9	− 0·214
March 5 to April 7	March 20	− 0·36	10	+ 0·81	9	− 1·406
April 10 to April 27	April 19	− 0·28	15	+ 0·64	15	− 0·869
May 1 to May 25	May 11	− 0·24	10	+ 1·50	6	+ 0·529
June 5 to June 30	June 20	− 0·18	10	− 0·33	9	− 0·357
July 2 to July 28	July 13	− 0·28	11	− 1·13	11	− 0·538
August 1 to August 31	August 18	− 0·17	14	− 1·58	15	− 0·659
September 4 to September 26	September 17	− 0·06	9	− 0·77	10	− 0·352
October 1 to October 31	October 13	− 0·14	11	− 1·33	12	− 0·442
November 4 to December 5	November 21	0·00	8	− 0·97	7	− 0·946
December 12 to December 29	December 20	+ 0·04	6	− 0·35	7	− 0·358

Equations formed by assuming the Error in Ecliptic Polar Distance to be represented by the Formula,

$x \times$ cos Sun's longitude $+ y \times$ sin Sun's longitude $+ z$,

and altering the number of observations so as to make the assumed weights of opposite parts of the year equal:

Spring	$-$ 0″·709	$=+$ 0·4522 x	$-$ 0·8919 y	$+ z$	Weight 7
	$-$ 0·214	$=+$ 0·8689 x	$-$ 0·4950 y	$+ z$	,, 12
	$-$ 1·406	$=+$ 0·9999 x	$-$ 0·0116 y	$+ z$	,, 11
Summer	$-$ 0·869	$=+$ 0·8759 x	$+$ 0·4825 y	$+ z$	,, 15
	$+$ 0·529	$=+$ 0·6401 x	$+$ 0·7683 y	$+ z$	,, 6
	$-$ 0·357	$=+$ 0·0256 x	$+$ 0·9997 y	$+ z$	,, 9
Autumn	$-$ 0·538	$=-$ 0·3497 x	$+$ 0·9369 y	$+ z$	,, 8
	$-$ 0·659	$=-$ 0·8185 x	$+$ 0·5745 y	$+ z$	,, 12
	$-$ 0·352	$=-$ 0·9946 x	$+$ 0·1042 y	$+ z$	,, 10
Winter	$-$ 0·442	$=-$ 0·9422 x	$-$ 0·3352 y	$+ z$	,, 13
	$-$ 0·946	$=-$ 0·5203 x	$-$ 0·8540 y	$+ z$	,, 9
	$-$ 0·358	$=-$ 0·0332 x	$-$ 0·9995 y	$+ z$	,, 8

Solution of Equations for the Investigation of the Position of the Ecliptic, 1855.

Equations multiplied by the Weights.

Spring	$-$ 4·963	$=+$ 3·1654 x	$-$ 6·2433 y	$+ 7 z$
	$-$ 2·568	$=+$ 10·4268 x	$-$ 5·9400 y	$+ 12 z$
	$-$ 15·466	$=+$ 10·9989 x	$-$ 0·1276 y	$+ 11 z$
Summer	$-$ 13·035	$=+$ 13·1385 x	$+$ 7·2375 y	$+ 15 z$
	$+$ 3·174	$=+$ 3·8406 x	$+$ 4·6098 y	$+ 6 z$
	$-$ 3·213	$=+$ 0·2304 x	$+$ 8·9973 y	$+ 9 z$
Autumn	$-$ 4·304	$=-$ 2·7976 x	$+$ 7·4952 y	$+ 8 z$
	$-$ 7·908	$=-$ 9·8220 x	$+$ 6·8940 y	$+ 12 z$
	$-$ 3·520	$=-$ 9·9460 x	$+$ 1·0420 y	$+ 10 z$
Winter	$-$ 5·746	$=-$ 12·2486 x	$-$ 4·3576 y	$+ 13 z$
	$-$ 8·514	$=-$ 4·6827 x	$-$ 7·6860 y	$+ 9 z$
	$-$ 2·864	$=-$ 0·2656 x	$-$ 7·9960 y	$+ 8 z$

New Equations formed by adding and subtracting those above, as indicated below:

Spring + Summer + Autumn + Winter

$-68''\cdot927 = +\ 2\cdot0381\ x + 3\cdot9253\ y + 120\ z$

Spring + Summer − Autumn − Winter

$-3''\cdot215 = +\ 81\cdot5631\ x + 13\cdot1421\ y$

Spring − Summer − Autumn + Winter

$-11''\cdot315 = +12\cdot7503\ x - 68\cdot6263\ y$

Solution of these Equations:

$x = -$ 0″·064

$y = +$ 0·153

$z = -$ 0·578

The first term indicates that, at the first point of Aries, the error of the tabular Ecliptic N. P. D. is negative, or the assumed Ecliptic is north of the Sun's true path, by 0″·064; and therefore that the right ascensions of all stars ought to be diminished by $\frac{0^s\cdot064}{15 \times \sin 23°.28'} = 0^s\cdot011$.

The second term indicates that the obliquity assumed in the calculations of the Nautical Almanac ought to be increased by 0″·153.

The third term indicates that the obliquity deduced from the southern solstice is greater than that deduced from the northern solstice by 1″·156.

MEAN ERRORS of the TABULAR GEOCENTRIC PLACES of the SUN and PLANETS.

THE SUN.

Extent of Group.	Number of Obs. of R.A.	Number of Obs. of N.P.D.	Mean Day, 1855.	Mean Error in R.A.	Mean Error in N.P.D.	Error in Longitude.	Error in E.P.D.
				s	"	"	"
Jan. 5 to Jan. 27	3	3	January 17	− 0·15	− 0·31	− 2·00	− 0·71
Feb. 10 to Mar. 1	9	9	February 19	− 0·34	+ 1·66	− 5·27	− 0·21
March 5 to April 7	10	9	March 20	− 0·36	+ 0·81	− 5·28	− 1·41
April 10 to April 27	15	15	April 19	− 0·28	+ 0·64	− 4·08	− 0·87
May 1 to May 25	10	6	May 11	− 0·24	+ 1·50	− 3·70	+ 0·53
June 5 to June 30	10	9	June 20	− 0·18	− 0·33	− 2·47	− 0·36
July 2 to July 28	11	11	July 13	− 0·28	− 1·13	− 4·02	− 0·54
Aug. 1 to Aug. 31	14	15	August 18	− 0·17	− 1·58	− 2·87	− 0·66
Sept. 4 to Sept. 26	9	10	September 17	− 0·06	− 0·77	− 1·13	− 0·35
Oct. 1 to Oct. 31	11	12	October 13	− 0·14	− 1·33	− 2·43	− 0·44
Nov. 4 to Dec. 5	8	7	November 21	0·00	− 0·97	− 0·21	− 0·95
Dec. 12 to Dec. 29	6	7	December 20	+ 0·04	− 0·35	+ 0·55	− 0·36

MERCURY.

February 20	1	1	February 20	− 0·66	− 2·74	− 8·03	− 6·39
April 18 to April 19	2	2	April 19	+ 0·03	+ 3·51	− 0·98	+ 3·41
May 1 to May 2	2	2	May 2	+ 0·06	− 1·69	+ 1·43	− 1·27
June 6 to June 22	4	4	June 15	+ 0·11	+ 3·20	+ 1·94	+ 2·96
Aug. 3 to Aug. 17	2	2	August 11	+ 0·42	− 2·54	+ 5·18	− 3·84
September 26	1	1	September 26	− 0·10	+ 5·51	+ 0·67	+ 5·66

VENUS.

January 18	1	1	January 18	− 0·18	− 0·50	− 2·33	− 1·12
March 7 to April 2	4	3	March 18	+ 0·12	− 3·71	+ 3·06	− 2·76
April 12 to April 26	8	9	April 19	+ 0·20	− 2·50	+ 3·29	− 1·83
May 2 to May 8	3	3	May 4	+ 0·13	− 1·59	+ 1·93	− 1·41
June 6 to June 30	6	7	June 19	− 0·19	+ 0·17	− 2·54	+ 0·90
July 3 to July 13	4	4	July 7	− 0·28	− 1·60	− 4·40	− 0·06
Aug. 2 to Aug. 31	6	7	August 18	− 0·55	− 5·28	− 9·65	− 1·59
Sept. 8 to Sept. 26	5	5	September 20	− 1·52	−13·52	−25·96	− 3·55
Oct. 5 to Oct. 19	5	3	October 12	− 1·62	−20·36	−30·51	− 8·98
Nov. 8 to Nov. 25	5	5	November 17	− 0·80	− 6·49	−13·58	− 1·28
Dec. 2 to Dec. 27	6	6	December 17	− 0·78	− 1·57	−11·37	+ 2·16

MARS.

Extent of Group.	Number of Obs. of R.A.	Number of Obs. of N.P.D.	Mean Day, 1855.	Mean Error in R.A.	Mean Error in N.P.D.	Error in Longitude.	Error in E.P.D.
				s	"	"	"
Dec. 2 to Dec. 30	6	6	December 18	− 0·32	− 5·13	− 6·46	− 2·80

VESTA.

July 20 to Aug. 21	7	8	August 12	+ 4·12	−26·86	+ 63·48	− 6·25
Aug. 29 to Sept. 12	10	10	September 5	+ 3·92	−21·05	+ 58·13	− 3·40
Sept. 19 to Oct. 10	12	12	September 28	+ 3·21	−14·46	+ 46·65	− 0·52
Oct. 18 to Oct 24	2	2	October 21	+ 2·34	− 9·39	+ 33·85	+ 1·12

JUNO.

April 13 to April 25	6	5	April 20	+ 4·53	+ 2·34	+ 69·60	− 9·74
May 2 to May 14	3	3	May 8	+ 4·76	+ 1·80	+ 73·32	− 12·31
May 28 to June 2	2	2	May 31	+ 4·77	− 0·16	+ 72·84	− 16·39
June 11 to June 20	4	4	June 16	+ 4·39	− 1·10	+ 66·39	− 17·10

CERES.

Sept. 25 to Oct. 15	2	3	September 30	+17·11	−115·94	+284·34	− 36·42
Oct. 26 to Nov. 10	3	4	November 2	+19·06	−123·73	+316·05	− 26·04
Nov. 30 to Dec. 22	9	9	December 14	+15·98	−105·79	+263·31	− 16·88

PALLAS.

August 9 to Sept. 1	9	9	August 20	+ 0·42	−28·55	+ 17·21	− 23·79
Sept. 7 to Oct. 4	8	8	September 19	+ 0·45	−29·57	+ 17·80	− 24·63
Oct. 18 to Nov. 15	5	5	October 31	+ 0·31	−26·28	+ 14·37	− 21·90

JUPITER.

Extent of Group.	Number of Obs. of R. A.	Number of Obs. of N. P. D.	Mean Day, 1855.	Mean Error in R. A.	Mean Error in N. P. D.	Error in Longitude.	Error in E. P. D.
				s	"	"	"
July 4 to July 20	3	3	July 13	+ 0·68	+ 0·65	+ 9·09	+ 4·18
Aug. 3 to Sept. 3	15	16	August 22	+ 0·44	− 2·34	+ 6·84	+ 0·02
Sept. 6 to Sept. 26	14	13	September 16	+ 0·35	− 1·17	+ 5·18	+ 0·60
Oct. 1 to Oct. 27	10	10	October 12	+ 0·23	− 1·13	+ 3·52	+ 0·03
Nov. 6 to Nov. 30	6	5	November 20	+ 0·19	− 0·57	+ 2·79	+ 0·38
Dec. 5 to Dec. 8	4	4	December 7	+ 0·08	− 0·69	+ 1·33	− 0·25

SATURN.

Jan. 10 to Jan. 19	4	4	January 15	+ 0·34	− 7·11	+ 5·81	− 6·32
Feb. 10 to Feb. 23	8	8	February 17	+ 0·29	− 7·48	+ 5·19	− 6·77
Mar. 3 to Mar. 8	3	3	March 6	+ 0·24	− 6·14	+ 4·26	− 5·57
Oct. 2	1	1	October 3	+ 0·33	− 2·67	+ 4·58	− 2·67
Dec. 5 to Dec. 28	11	11	December 18	+ 0·60	− 4·41	+ 8·44	− 4·20

URANUS.

Jan. 17 to Jan. 19	2	2	January 18	+ 12·55	− 56·88	+190·29	+ 1·07
Sept. 25 to Oct. 26	6	6	October 13	+ 13·71	− 55·70	+203·83	− 0·86
Nov. 1 to Nov. 30	4	5	November 11	+ 13·85	− 57·61	+206·70	− 0·85
Dec. 6 to Dec. 31	10	10	December 18	+ 13·48	− 57·34	+201·92	− 0·53

NEPTUNE.

July 31 to Sept. 3	13	13	August 20	+ 0·16	− 1·03	+ 2·60	− 0·02
Sept. 6 to Oct. 4	11	11	September 16	− 0·01	+ 0·57	− 0·36	+ 0·47
Oct. 18 to Nov. 10	5	5	October 26	− 0·21	+ 1·01	− 3·28	− 0·29
Nov. 15 to Dec. 12	6	6	November 29	− 0·18	+ 1·51	− 3·06	+ 0·35

ERRORS of the TABULAR HELIOCENTRIC PLACES of the PLANETS.

MERCURY.

Day, 1855.		Error of Tables of the Planet in Geocentric Longitude, expressed in terms of Error of Heliocentric Longitude of Planet (δL), of Error of Projection of Radius Vector of Planet ($\delta \rho$), of Error of Earth's Longitude (δl), and of Error of Earth's Radius Vector (δr). ($\delta \rho$ and δr are expressed in terms of the Earth's mean Distance from the Sun.)					Error of Tables in Hel. E.P.D.
		"		"		"	"
February	20	− 8·03	=	− 0·062 δL	+ 228815 $\delta \rho$	+ 1·062 δl − 71287 δr	− 18·33
April	19	− 0·98	=	+ 0·169	− 165592	+ 0·831 + 70327	+ 8·86
May	2	+ 1·43	=	+ 0·227	− 96614	+ 0·773 + 34434	− 4·48
June	15	+ 1·94	=	− 0·137	+ 245352	+ 1·137 −105365	+ 5·50
August	11	+ 5·18	=	+ 0·141	− 154423	+ 0·859 + 46799	− 14·19
September	26	+ 0·67	=	+ 0·236	+ 132740	+ 0·764 − 61674	+ 14·81

VENUS.

January	18	− 2·33	=	+ 0·423 δL	+ 24817 $\delta \rho$	+ 0·577 δl	− 18299 δr	− 2·59
March	18	+ 3·06	=	+ 0·401	+ 71054	+ 0·601	− 51939	− 5·85
April	19	+ 3·29	=	+ 0·370	+ 105245	+ 0·630	− 75216	− 3·51
May	4	+ 1·93	=	+ 0·349	+ 124267	+ 0·651	− 88378	− 2·54
June	19	− 2·54	=	+ 0·225	+ 203751	+ 0·775	−144550	+ 1·20
July	7	− 4·40	=	+ 0·123	+ 248290	+ 0·877	−176738	− 0·07
August	18	− 9·65	=	− 0·535	+ 392817	+ 1·533	−282190	− 1·07
September	20	−25·96	=	− 2·251	+ 268715	+ 3·237	−193905	− 1·45
October	12	−30·51	=	− 2·258	− 283715	+ 3·249	+205220	− 3·64
November	17	−13·58	=	− 0·434	− 396980	+ 1·434	+288900	− 0·88
December	17	−11·37	=	+ 0·061	− 286120	+ 0·938	+208565	+ 2·16

MARS.

December	18	− 6·46	=	+ 0·929 δL	− 83684 $\delta \rho$	+ 0·071 δl	+141535 δr	− 2·44

VESTA.

August	12	+ 63·48	=	+ 1·808 δL	− 1869 $\delta \rho$,		− 3·45 + 5466 $\delta \rho$
September	5	+ 58·13	=	+ 1·670	+ 30658		− 3·03 + 5715
September	28	+ 46·65	=	+ 1·408	+ 45224		− 1·95 + 5014
October	21	+ 33·85	=	+ 1·173	+ 46162		− 0·67 + 3703

JUNO.

Day, 1855.		Error of Tables of the Planet in Geocentric Longitude, expressed in terms of Error of Heliocentric Longitude of Planet (δL), of Error of Projection of Radius Vector of Planet ($\delta \rho$), of Error of Earth's Longitude (δl), and of Error of Earth's Radius Vector (δr). ($\delta \rho$ and δr are expressed in terms of the Earth's mean Distance from the Sun.)	Error of Tables in Hel. E. P. D.
		"	" "
April	20	$+ 69{\cdot}60 = + 1{\cdot}348\ \delta L - 14656\ \delta \rho$	$- 9{\cdot}76 - 4832\ \delta \rho$
May	8	$+ 73{\cdot}32 = + 1{\cdot}431 - 6240$	$-10{\cdot}00 - 5549$
May	31	$+ 72{\cdot}84 = + 1{\cdot}432 + 6868$	$-10{\cdot}81 - 5729$
June	16	$+ 66{\cdot}39 = + 1{\cdot}364 + 14605$	$-10{\cdot}53 - 5324$

CERES.

September	30	$+284{\cdot}34 = + 1{\cdot}410\ \delta L - 22099\ \delta \rho$	$-17{\cdot}24 + 4857\ \delta \rho$
November	2	$+316{\cdot}05 = + 1{\cdot}544 + 1912$	$-17{\cdot}91 + 5028$
December	14	$+263{\cdot}31 = + 1{\cdot}296 + 27660$	$-20{\cdot}57 + 3129$

PALLAS.

August	20	$+ 17{\cdot}21 = + 1{\cdot}395\ \delta L - 14646\ \delta \rho$	$-17{\cdot}09 - 1818\ \delta \rho$
September	19	$+ 17{\cdot}80 = + 1{\cdot}475 + 3830$	$-16{\cdot}69 - 507$
October	31	$+ 14{\cdot}37 = + 1{\cdot}235 + 24152$	$-17{\cdot}31 + 1271$

JUPITER.

July	13	$+ 9{\cdot}09 = + 1{\cdot}181\ \delta L - 6520\ \delta \rho - 0{\cdot}181\ \delta l + 32309\ \delta r$	$+ 3{\cdot}51$
August	22	$+ 6{\cdot}84 = + 1{\cdot}252 + 240 - 0{\cdot}252 - 1168$	$+ 0{\cdot}02$
September	16	$+ 5{\cdot}18 = + 1{\cdot}215 + 4800 - 0{\cdot}215 - 23997$	$+ 0{\cdot}49$
October	12	$+ 3{\cdot}50 = + 1{\cdot}128 + 7739 - 0{\cdot}128 - 38955$	$+ 0{\cdot}03$
November	20	$+ 2{\cdot}79 = + 0{\cdot}992 + 8245 + 0{\cdot}008 - 41741$	$+ 0{\cdot}38$
December	7	$+ 1{\cdot}33 = + 0{\cdot}941 + 7401 + 0{\cdot}059 - 37558$	$- 0{\cdot}26$

SATURN.

January	15	$+ 5{\cdot}81 = + 1{\cdot}083\ \delta L + 1911\ \delta \rho - 0{\cdot}083\ \delta l - 17645\ \delta r$	$- 5{\cdot}82$
February	17	$+ 5{\cdot}19 = + 1{\cdot}021 + 2520 - 0{\cdot}021 - 23055$	$- 6{\cdot}59$
March	6	$+ 4{\cdot}26 = + 0{\cdot}989 + 2475 + 0{\cdot}011 - 22616$	$- 5{\cdot}60$
October	3	$+ 4{\cdot}58 = + 1{\cdot}019 - 2561 - 0{\cdot}019 + 23125$	$- 2{\cdot}60$
December	18	$+ 8{\cdot}44 = + 1{\cdot}122 - 30 - 0{\cdot}123 + 239$	$- 3{\cdot}74$

URANUS.

Day, 1855.	Error of Tables of the Planet in Geocentric Longitude, expressed in terms of Error of Heliocentric Longitude of Planet (δL), of Error of Projection of Radius Vector of Planet ($\delta \rho$), of Error of Earth's Longitude (δl), and of Error of Earth's Radius Vector (δr). ($\delta \rho$ and δr are expressed in terms of the Earth's mean Distance from the Sun.)	Error of Tables in Hel. E. P. D.
January 18	$+190''.75 = +1.013\,\delta L + 511''\,\delta\rho - 0.013\,\delta l - 10288''\,\delta r$	$+1''.06$
October 13	$+203.83 = +1.046 - 285 - 0.046 + 5574$	$-0''.82$
November 11	$+206.70 = +1.053 - 3 - 0.053 + 61$	$-0''.81$
December 18	$+201.92 = +1.041 + 341 - 0.041 - 6832$	$-0''.51$

NEPTUNE.

August	20	$+2''.60 =$	$+1.033\,\delta L$	$-83\,\delta\rho$	$-0.033\,\delta l$	$+2492\,\delta r$	$-0''.02$
September	16	$-0''.36 =$	$+1.034$	$+29$	-0.035	-799	$+0''.45$
October	26	$-3''.28 =$	$+1.023$	$+170$	-0.023	-5148	$-0''.28$
November	29	$-3''.06 =$	$+1.005$	$+226$	-0.005	-6855	$+0''.35$

ERRORS of the MOON'S TABULAR PLACE in LONGITUDE and ECLIPTIC NORTH POLAR DISTANCE.

Day, 1855.	Errors from Observation with Transit Circle. In Longitude.	In E.N.P.D.	Observer.	Errors from Observation with Altazimuth. In Longitude.	In E.N.P.D.	Observer.	Day, 1855.	Errors from Observation with Transit Circle. In Longitude.	In E.N.P.D.	Observer.	Errors from Observation with Altazimuth. In Longitude.	In E.N.P.D.	Observer.
	″	″		″	″			″	″		″	″	
Jan. 3	+ 5·40	− 3·85	H	+ 8·35	− 7·39	T	March 6	+11·53	+ 3·89	E	+ 4·56	+ 4·84	H
4	+ 6·56	− 2·65	D	+ 9·00	+ 0·89	E	7				+ 3·07	+ 1·98	M
6				+ 0·44	− 1·29	D	8	+11·32	+ 4·17	E	+ 2·51	+ 6·37	D
9				+ 4·71	+ 1·04	D	23				+ 6·60	− 4·13	C
12				+ 6·85	+ 1·60	H	25	+10·07	− 3·63	D	+ 9·88	− 4·49	D
13				+ 1·73	+ 1·83	D	26	+11·90	− 3·96	C	+10·75	− 0·09	E
23				+ 4·87	− 3·94	H	27				+ 7·04	− 0·53	H
26				+ 7·86	− 7·64	E	28				+ 3·90	+ 2·14	C
27	+ 4·65	− 5·69	D	+ 6·70	−10·16	H	29				+ 4·46	− 0·31	M
28				+ 3·58	− 8·56	E	30	− 1·42	+ 1·57	C	+ 2·39	+ 5·81	E
29				+ 0·76	− 6·15	D	31	− 2·51	+ 2·45	AL	− 0·09	+ 2·42	H
Feb. 1				− 0·13	+ 1·49	E	April 1	− 2·33	+ 2·96	E	+ 0·64	+ 4·21	E
3	+ 5·71	− 1·35	E	+ 3·03	− 4·19	D	2				+ 5·98	+ 3·86	M
9	+ 5·07	+ 1·40	D	+ 7·87	+ 0·34	H	4	+ 9·40	+ 5·89	AL	+ 6·94	+ 4·47	C
10				+ 9·05	+ 4·35	E	6				+13·42	+ 8·17	C
18				+ 7·96	− 0·63	H	7	+11·37	+ 3·66	M	+ 9·73	+ 5·90	M
20	+ 7·70	− 1·69	D	+12·06	+ 1·80	H	9				+13·34	+ 8·84	E
21				+ 4·18	− 1·11	T	18				+ 7·32	− 3·23	M
22	+ 4·02	− 5·07	H	+ 7·03	− 3·23	D	19				+ 7·63	− 4·36	E
23	+ 5·58	− 2·69	T	+ 8·08	− 4·90	E	20				+14·44	− 2·63	C
28				+ 2·64	− 1·89	E	21				+12·05	− 6·28	H
							22	+ 7·37	− 3·78	C	+11·76	− 7·34	C
March 1	− 5·38	+ 0·46	H	− 5·78	− 3·57	T	23	+ 6·37	− 2·00	E	+ 9·13	− 2·79	M
2	− 5·61	+ 1·57	E	− 6·46	+ 0·58	D	24				+ 6·78	+ 1·32	C
3	− 1·95	− 0·04	AL	− 2·89	− 0·04	H	25	+ 9·53	− 0·38	AL	+ 9·83	+ 0·52	H
4	+ 4·14	+ 2·00	E	− 1·15	+ 0·37	E	26				+ 3·05	+ 4·04	E
5	+ 5·69	+ 4·10	D	+ 1·71	− 0·97	L	27	+ 3·08	− 2·24	H	+ 9·08	+ 4·27	M
							30				+ 0·89	+ 3·89	E

ERRORS of the MOON'S TABULAR PLACE—*continued.*

Day, 1855.	Errors from Observation with Transit Circle. In Longitude.	Errors from Observation with Transit Circle. In E.N.P.D.	Observer.	Errors from Observation with Altazimuth. In Longitude.	Errors from Observation with Altazimuth. In E.N.P.D.	Observer.
	″	″		″	″	
May 1	+ 5·98	+ 1·80	H	+ 4·62	+ 1·76	M
2	+ 6·75	+ 3·89	E	+ 0·76	+ 2·73	C
4	+10·91	+ 5·53	C	+ 6·62	+ 4·68	E
5	+15·02	+ 4·52	E	+ 6·73	+ 5·03	H
8	+15·85	+ 0·50	HT	+ 9·44	− 0·13	E
18				+ 3·74	− 3·39	D
19				+ 5·49	− 1·53	C
22				+ 7·23	+ 1·97	H
23	+ 5·24	+ 2·77	D	+ 7·95	+ 2·53	C
24				+ 8·04	+ 2·68	E
25	+ 8·50	+ 3·01	C	+11·74	+ 3·35	D
26	+ 8·09	+ 6·21	E	+12·18	+ 1·27	H
28				+ 5·55	+ 6·75	E
29				+ 6·79	+ 3·53	H
June 1	+10·69	+ 2·77	D	+10·17	+ 1·84	E
2	+16·37	+ 2·86	C	+13·09	+ 3·36	AL
5	+14·23	− 2·29	C	+10·24	− 6·57	D
7				+14·10	− 4·91	M
8				+ 9·14	− 5·75	C
9	− 1·54	−10·03	H	+ 0·67	−11·07	D
19				+ 6·92	+ 4·95	H
20	+ 5·35	+ 1·50	D	+ 5·07	+ 4·20	C
21	+ 4·10	+ 2·01	H	+ 4·54	+10·44	E
23				+ 5·91	+ 9·43	H
24	+ 7·23	+ 7·61	C	+ 6·62	+ 6·48	C
25				+10·03	+ 7·21	E
26	+ 4·69	+ 6·24	C	+ 9·62	+ 6·99	H
27	+ 4·52	+ 7·89	E	+10·75	+ 8·18	D
28	+ 9·91	+ 8·81	HT	+14·83	+ 6·71	C
29				+14·86	+ 6·36	E
30	+17·94	+ 4·06	C	+17·59	+ 7·57	H
July 3				+15·78	+ 0·31	D
4	+12·02	− 0·61	D	+13·56	− 4·97	AL
5				+ 9·18	− 3·45	E
6				+ 8·43	− 8·07	C
18				+ 6·39	+ 3·55	C
19				+ 3·17	+ 3·20	E
20				+ 4·03	+ 2·95	AL
21				+12·09	+ 6·59	H
22				+10·47	+ 5·48	C
25	+11·92	+ 8·93	E	+11·45	+ 9·06	D
26	(+12·69)	(− 3·16)	T	+13·76	+10·39	C
27	+18·31	+ 8·08	D	+15·20	+ 7·04	E
28	+19·75	+ 7·36	C	+18·61	+ 5·02	AL
29				+21·00	+ 4·25	E
31	+18·68	+ 2·08	E	+18·39	− 1·13	M
Aug. 1				+15·37	+ 1·20	AL
2	+ 8·77	+ 3·41	E	+11·89	− 4·02	M
3				+14·11	− 4·05	AB
4	+ 8·95	− 3·97	M			
5				+ 4·90	− 7·14	E
7				+ 3·85	− 4·04	AB
9				+ 4·13	− 4·35	E
16				+19·93	− 0·86	C
17				+18·04	− 0·84	D
18	+16·11	− 0·70	C			

Day, 1855.	Errors from Observation with Transit Circle. In Longitude.	Errors from Observation with Transit Circle. In E.N.P.D.	Observer.	Errors from Observation with Altazimuth. In Longitude.	Errors from Observation with Altazimuth. In E.N.P.D.	Observer.
	″	″		″	″	
Aug. 20				+15·20	+ 2·69	H
21	+16·91	+ 4·52	C	+17·81	+ 1·65	D
22				+22·54	+ 3·32	H
23				+19·91	+ 3·64	C
24				+15·05	+ 3·37	E
25	+19·23	+ 3·85	C	+16·94	+ 1·98	D
26	+21·05	+ 2·94	H	+17·76	+ 0·82	E
27	+22·27	+ 1·00	D	+19·39	− 0·41	C
28	+24·78	− 0·63	AL	+24·15	− 6·43	E
29	+19·91	+ 0·29	C	+20·28	− 8·39	D
30	+13·80	− 4·14	AL	+17·58	− 8·55	E
31				+10·39	− 9·20	D
Sept. 1	+ 9·12	− 2·93	AL	+ 7·94	−11·42	E
2	+ 8·03	− 4·33	C	+ 5·78	−11·20	D
3				+11·42	− 9·64	M
4				+ 9·80	− 5·19	E
5				+ 6·60	−10·03	C
6	+11·01	+ 1·14	C	+ 4·70	− 5·42	D
7				+ 4·20	− 4·00	M
19				+14·47	+ 1·06	M
20	+16·04	− 1·02	D	+12·96	− 1·30	H
21	+14·93	+ 0·36	AL	+18·49	− 0·68	C
22	+13·43	+ 0·66	T	+13·41	− 0·92	D
23	+14·41	− 2·84	C	+15·15	+ 0·66	C
24	+15·49	− 2·53	D	+19·85	− 4·20	M
25	+17·96	− 4·38	C	+18·51	− 7·56	H
26	+19·95	− 5·43	AL	+15·88	−11·26	D
28				+15·33	−11·21	M
29				+15·04	−10·62	C
30				+10·15	− 6·99	H
Oct. 1				+11·43	− 6·36	M
2				+ 8·75	− 8·40	D
3				+17·65	+ 3·47	AL
4				+ 8·53	− 9·33	E
5	+11·83	+ 0·81	E			
6				+ 8·04	− 2·11	D
7				+10·40	− 6·49	C
16				+ 7·71	− 0·10	M
18	+ 5·90	− 1·87	AB	+ 6·85	− 1·86	D
19	+ 9·57	− 0·51	E	+ 8·25	+ 0·93	M
20				+10·12	− 0·13	M
22				+ 9·57	+ 0·16	AL
23				+ 3·92	− 5·04	E
24	+25·24	− 0·02	HT	+10·03	− 7·92	C
25				+13·52	− 7·52	M
26	+14·72	− 6·54	C			
27				+ 8·43	−10·57	E
28				+10·01	− 7·85	C
31	+ 5·53	− 2·74	E	+ 3·18	− 0·83	M
Nov. 3	+ 9·21	+ 0·33	E	+ 1·22	− 1·66	E
5				+ 6·41	− 1·08	E
15	+ 9·16	− 0·64	HB	+ 6·07	− 1·28	C
16	+ 8·11	− 1·70	D			
20	+ 1·51	− 6·06	HB	+ 6·60	− 6·29	D
22	+ 5·73	− 6·99	D	+ 8·11	− 7·49	HB
23				+ 3·61	− 7·76	C

ERRORS of the MOON'S TABULAR PLACE—*concluded.*

Day, 1855.	Errors from Observation with Transit Circle. In Longitude.	Errors from Observation with Transit Circle. In E. N. P. D.	Observer.	Errors from Observation with Altazimuth. In Longitude.	Errors from Observation with Altazimuth. In E. N. P. D.	Observer.	Day, 1855.	Errors from Observation with Transit Circle. In Longitude.	Errors from Observation with Transit Circle. In E. N. P. D.	Observer.	Errors from Observation with Altazimuth. In Longitude.	Errors from Observation with Altazimuth. In E. N. P. D.	Observer.
	″	″		″	″			″	″		″	″	
Nov. 24				+ 6·46	− 4·88	D	Dec. 17				+10·78	+ 1·33	D
25	+ 9·41	− 4·25	C	+11·02	− 4·39	C	18	+ 9·34	− 5·53	C	+ 9·85	−10·72	HB
26	+10·26	− 1·73	D	+ 8·23	− 4·82	E	19	+ 9·83	− 6·32	D	+ 6·43	−10·67	AL
27				+ 7·96	− 1·57	C	20	+ 5·07	−10·55	HT	+ 8·41	−13·20	C
28				+ 2·74	+ 0·09	D	21	+ 0·74	− 2·29	AB	+ 3·34	−10·99	D
29	+ 1·13	+ 1·47	D	+ 4·99	− 0·38	HB	22				+ 2·43	− 7·79	C
30				+ 1·53	− 0·88	E	23				− 0·08	− 3·87	D
							24	+ 8·17	− 4·99	C	+ 3·04	− 2·44	E
Dec. 2	+ 5·67	+ 2·88	E	+ 4·97	+ 3·14	D	25						
4				+ 5·36	+ 1·83	D	26	+ 3·55	+ 0·86	E	+ 4·87	+ 0·56	C
5				+ 3·48	+ 5·45	E	27	+ 3·13	− 2·34	C	+ 3·39	− 1·62	AL
6				+ 7·29	+ 3·09	HB	28				+ 0·33	− 0·01	M
12				+25·07	+13·47	AB	29	+ 4·18	− 4·49	E	− 0·41	+ 3·56	D
13				+13·45	+ 3·40	D	30	− 1·16	+ 3·01	D	+ 1·92	+ 8·19	C
15				+10·62	+ 5·75	D							

ROYAL OBSERVATORY, GREENWICH.

OBSERVATIONS OF γ DRACONIS

WITH THE

REFLEX ZENITH TUBE;

AND

REDUCTION OF THE OBSERVATIONS.

1855.

OBSERVATIONS of γ DRACONIS with the Reflex Zenith Tube, and REDUCTION of the OBSERVATIONS.

Day and Hour of Observation, 1855.	Observer.	Position of Mic. A.	Wire used.	Micrometer Readings. A	Micrometer Readings. B	Level Readings.		Equivalent for Level.	Sum of Equivalents for Wire, for Micrometer-Readings, and for Level Readings.	Assumed Instrumental Constant.	Star's Z.D. North from Observation.	Correction to Mean Z.D. North for 1855, Jan. 1.	Mean Zenith Distance North, 1855, Jan. 1.
				r	r	div.	div.	"	"	"	"	"	"
March d 26. h 18	C	Left	16	28·218	48·884	25·0	89·9	0·74	+ 337·63	254·95	82·68	+26·53	109·21
" "		Right	15	31·372	48·884	11·2	76·5	0·57	− 172·67		82·28		108·81
April 17. 16	C	Left	16	32·514	44·710	27·6	88·5	0·75	+ 339·70		84·75	+24·17	108·92
" "		Right	15	35·339	44·710	10·9	72·0	0·54	− 169·16		85·79		109·96
April 19. 16	AL	Left	16	35·233	42·025	25·0	86·0	0·72	+ 340·23		85·28	+23·85	109·13
" "		Right	15	38·162	42·025	12·6	74·2	0·56	− 171·50		83·45		107·30
April 20. 16	E	Left	16	38·100	39·196	26·5	88·2	0·74	+ 340·89		85·94	+23·69	109·63
" "		Right	15	49·826	39·196	11·8	74·3	0·56	− 168·73		86·22		109·91
April 25. 16	C	Left	16	40·376	36·973	24·3	87·0	0·72	+ 341·75		86·80	+22·69	109·49
" "		Right	15	43·056	36·973	13·7	76·4	0·58	− 168·87		86·08		108·77
May 2. 15	AL	Left	16	28·838	48·527	22·0	85·0	0·69	+ 341·99		87·04	+21·18	108·22
May 8. 15	C	Left	16	28·974	48·563	20·8	82·6	0·67	+ 344·86		89·91	+19·68	109·59
" "		Right	15	31·373	48·563	17·7	79·6	0·63	− 167·35		87·60		107·28
June 1. 13	D	Left	16	34·120	43·815	16·0	78·5	0·61	+ 351·47		96·52	+12·61	109·13
" "		Right	15	35·568	43·815	22·5	84·7	0·69	− 158·13		96·82		109·43
June 2. 13	C	Left	16	40·979	37·153	17·0	76·7	0·61	+ 354·78		99·83	+12·29	112·12
" "		Right	15	42·183	37·153	23·9	83·5	0·69	− 157·34		97·61		109·90
June 5. 13	AL	Left	16	42·200	35·858	20·5	78·5	0·64	+ 353·57		98·62	+11·33	109·95
" "		Right	15	43·503	35·858	22·5	80·5	0·67	− 157·75		97·20		108·53
June 9. 13	HT	Left	16	43·840	34·098	19·5	77·0	0·62	+ 351·53		96·58	+10·05	106·63
" "		Right	15	44·935	34·098	27·0	79·0	0·69	− 152·26		102·69		112·74
June 19. 12	E	Right	15	44·902	34·198	24·5	83·8	0·70	− 153·40		101·55	+ 6·85	108·40
" "		Left	16	44·902	33·334	14·3	74·2	0·58	+ 356·84		101·89		108·74
June 20. 12	D	Left	16	44·902	33·471	13·5	74·2	0·57	+ 358·79		103·84	+ 6·53	110·37
" "		Right	15	45·590	33·471	25·0	86·0	0·72	− 152·77		102·18		108·71
June 21. 12	H	Right	15	46·092	32·948	24·8	85·0	0·71	− 152·40		102·55	+ 6·21	108·76
" "		Left	16	46·092	32·245	13·6	73·4	0·56	+ 358·17		103·22		109·43
June 27. 12	E	Left	16	45·576	32·926	15·0	70·5	0·55	+ 360·93		105·98	+ 4·29	110·27
" "		Right	15	45·895	32·926	29·2	84·8	0·74	− 148·76		106·19		110·48
June 28. 11	HT	Left	16	45·897	32·690	15·5	71·5	0·56	+ 362·37		107·42	+ 3·97	111·39
" "		Right	15	46·202	32·690	28·5	85·0	0·73	− 149·93		105·02		108·99

The numerical value of the Sum of Equivalents in column 10, $= w +$ (sum of Micrometer Readings $- 70) \times 16''\cdot780 +$ sum of Level Readings $\times 0''\cdot00646$; where w, for wire 15, $= 0$, and, for wire 16, $= 3'.37''\cdot72$. The sign is positive when Micrometer A is *left*, and negative when it is *right*.

March 26. Very tremulous.

April 19. Tremulous.

April 25. Good; the star steady.

May 2. The mercury agitated by wind; a very bad observation. The reading of A was set down $30^r\cdot838$.

June 5. Cloudy; the observation bad.

June 9. The star very tremulous and flickering.

June 21. Right. The reading of B was set down $24^r\cdot948$.

OBSERVATIONS of γ DRACONIS with the Reflex Zenith Tube, and Reduction of the Observations—*continued.*

Day and Hour of Observation, 1855.	Observer.	Position of Mic. A.	Wire used.	Micrometer Readings. A	Micrometer Readings. B	Level Readings.		Equivalent for Level.	Sum of Equivalents for Wire, for Micrometer-Readings, and for Level Readings.	Assumed Instrumental Constant.	Star's Z.D. North from Observation.	Correction to Mean Z.D. North for 1855, Jan. 1.	Mean Zenith Distance North, 1855, Jan. 1.
				r	r	div.	div.	"	"	"	"	"	"
June d h 30. 11	C	Left	16	45·383	33·031	14·0	69·9	0·54	+ 359·45	254·95	104·50	+ 3·33	107·83
" "		Right	15	45·747	33·031	28·8	85·0	0·73	— 148·03		106·92		110·25
July 4. 11	C	Left	16	45·450	33·179	13·2	70·5	0·54	+ 363·06		108·11	+ 2·13	110·24
" "		Right	15	45·541	33·179	28·0	85·5	0·73	— 147·06		107·89		110·02
July 5. 11	D	Right	15	45·982	32·756	31·5	86·3	0·76	— 147·38		107·57	+ 1·83	109·40
" "		Left	16	45·982	32·542	12·4	68·2	0·52	+ 361·28		106·33		108·16
July 12. 11	H	Right	15	46·725	31·970	30·5	86·2	0·76	— 146·66		108·29	— 0·23	108·06
" "		Left	16	46·725	31·986	9·0	65·2	0·48	+ 364·38		109·43		109·20
July 13. 10	AB	Left	16	46·723	31·792	14·2	69·4	0·54	+ 361·14		106·19	— 0·51	105·68
" "		Right	15	46·858	31·792	30·0	85·5	0·75	— 145·90		109·05		108·54
July 14. 10	D	Left	16	46·850	31·908	14·3	70·2	0·55	+ 365·23		110·28	— 0·79	109·49
" "		Right	15	46·748	31·908	30·0	86·0	0·75	— 146·00		108·95		108·16
July 19. 10	H	Left	16	46·748	32·220	11·0	68·2	0·51	+ 368·71		113·76	— 2·19	111·57
" "		Right	15	46·218	32·220	30·8	88·0	0·77	— 142·35		112·60		110·41
July 21. 10	E	Left	16	46·230	32·592	11·0	66·7	0·50	+ 366·25		111·30	— 2·72	108·58
" "		Right	15	45·867	32·592	32·4	89·0	0·78	— 142·72		112·23		109·51
July 28. 10	C	Left	16	46·150	32·910	9·5	66·0	0·49	+ 370·24		115·29	— 4·47	110·82
July 31. 9	E	Right	15	45·388	32·911	32·5	88·8	0·78	— 140·04		114·91	— 5·18	109·73
" "		Left	16	45·388	33·566	10·4	66·6	0·50	+ 368·47		113·52		108·34
Aug. 9. 9	AL	Left	16	45·434	33·749	8·5	65·5	0·48	+ 372·29		117·34	— 7·07	110·27
" "		Right	15	44·374	33·749	33·0	89·5	0·79	— 137·10		117·85		110·78
Aug. 13. 8	C	Left	16	44·160	34·910	9·0	66·1	0·48	+ 370·40		115·45	— 7·75	107·70
" "		Right	15	43·290	34·910	33·3	90·4	0·80	— 138·40		116·55		108·80
Aug. 15. 8	D	Right	15	42·449	35·622	31·8	88·2	0·78	— 136·22		118·73	— 8·09	110·64
" "		Left	16	42·449	36·690	7·7	64·2	0·47	+ 371·54		116·59		108·50
Aug. 16. 8	AB	Left	16	42·414	36·802	12·5	69·0	0·53	+ 372·90		117·95	— 8·26	109·69
" "		Right	15	41·338	36·802	28·4	84·0	0·73	— 137·32		117·63		109·37
Aug. 20. 8	E	Right	15	41·279	36·858	31·3	87·2	0·76	— 137·30		117·65	— 8·90	108·75
" "		Left	16	41·279	37·916	12·3	68·0	0·52	+ 372·53		117·58		108·68
Aug. 25. 8	C	Left	16	41·280	37·947	11·9	68·3	0·52	+ 373·08		118·13	— 9·55	108·58
" "		Right	15	40·155	37·947	34·0	90·5	0·81	— 136·76		118·19		108·64

The numerical value of the Sum of Equivalents in column 10, $= w +$ (sum of Micrometer Readings $- 70) \times 16''\cdot780 +$ sum of Level Readings $\times 0''\cdot00646$; where w, for wire 15, $= 0$, and, for wire 16, $= 3'.37''\cdot72$. The sign is positive when Micrometer A is *left*, and negative when it is *right*.

June 30. Very tremulous.

July 4. The image very bad; the observer disturbed by noise.

July 13. Exceedingly faint; seen through cirrus cloud.

July 28. Cloudy for observation *Right*.

July 31. Left; the bisection with micrometer B rather uncertain.

August 16. Scarcely visible; seen through thin clouds.

OBSERVATIONS of γ DRACONIS with the Reflex Zenith Tube, and Reduction of the Observations—*concluded.*

Day and Hour of Observation, 1855.	Observer.	Position of Mic. A.	Wire used.	Micrometer Readings. A	Micrometer Readings. B	Level Readings.		Equivalent for Level.	Sum of Equivalents for Wire, for Micrometer-Readings, and for Level Readings.	Assumed Instrumental Constant.	Star's Z.D. North from Observation.	Correction to Mean Z.D. North for 1855, Jan. 1.	Mean Zenith Distance North, 1855, Jan. 1.
				r	r	div.	div.	″	″	″	″	″	″
August d 27. h 8	D	Right	15	39·789	38·250	29·8	86·5	0·75	− 135·64	254·95	119·31	− 9·81	109·50
,, ,,		Left	16	39·789	39·470	11·8	68·2	0·52	+ 373·61		118·66		108·85
August 28. 7	AL	Left	16	39·323	39·427	12·0	68·1	0·52	(+ 365·07)		(110·12)	− 9·94	(100·18)
,, ,,		Right	15	38·735	39·427	31·0	87·0	0·76	− 137·71		117·24		107·30
August 29. 7	C	Left	16	38·800	40·499	11·5	67·5	0·51	+ 374·27		119·32	−10·07	109·25
,, ,,		Right	15	37·500	40·499	34·0	90·2	0·80	− 135·02		119·93		109·86
August 30. 7	AL	Left	16	37·436	41·879	11·7	68·0	0·52	+ 374·54		119·59	−10·16	109·43
,, ,,		Right	15	36·274	41·879	31·0	87·2	0·76	− 137·57		117·38		107·22
August 31. 7	AB	Left	16	36·190	42·994	10·5	67·0	0·50	+ 372·33		117·38	−10·25	107·13
,, ,,		Right	15	35·139	42·994	30·0	86·8	0·75	− 137·22		117·73		107·48
September 1. 7	C	Left	16	35·210	44·187	12·0	69·5	0·53	+ 374·57		119·62	−10·34	109·28
,, ,,		Right	15	33·827	44·187	31·5	90·0	0·79	− 135·27		119·68		109·34
September 3. 7	C	Left	16	34·001	45·360	10·0	67·5	0·50	+ 375·30		120·35	−10·52	109·83
,, ,,		Right	15	32·620	45·360	35·0	93·0	0·83	− 134·73		120·22		109·70
September 7. 7	C	Left	16	32·173	47·080	8·4	67·0	0·48	+ 373·47		118·52	−10·88	107·64
,, ,,		Right	15	30·907	47·080	32·5	91·0	0·80	− 134·82		120·13		109·25
September 12. 6	E	Right	15	29·172	48·739	31·5	89·0	0·78	− 133·53		121·42	−11·13	110·29
,, ,,		Left	16	29·172	50·228	6·7	64·2	0·45	+ 375·90		120·95		109·82
September 25. 6	C	Left	16	42·560	36·746	7·5	66·2	0·48	+ 374·35		119·40	−11·23	108·17
,, ,,		Right	15	41·180	36·746	35·0	93·5	0·82	− 133·82		121·13		109·90
September 26. 6	AL	Left	16	41·180	38·217	8·0	67·3	0·49	+ 375·89		120·94	−11·21	109·73
,, ,,		Right	15	39·708	38·217	33·0	92·0	0·81	− 133·79		121·16		109·95

The numerical value of the Sum of Equivalents in column 10, $= w$ + (sum of Micrometer Readings − 70) × 16″·780 + sum of Level Readings × 0″·00646; where w, for wire 15, = 0, and, for wire 16, = 3′. 37″·72. The sign is positive when Micrometer A is *left*, and negative when it is *right*.

August 28. Very bad; the mercury was agitated by the shutting of the entrance-gate as the star came into the field.

August 29. Unsteady.

August 30. The star steady and well defined.

September 1. Very unsteady.

September 3. Very tremulous; cloudy.

September 25. Extremely tremulous; the observation not good.

On October 9, the instrument was taken to pieces previously to being mounted in a new situation.

ROYAL OBSERVATORY, GREENWICH.

ECLIPSES, OCCULTATIONS, AND TRANSITS

OF

JUPITER'S SATELLITES,

COMPARED WITH THE NAUTICAL ALMANAC:

AND

OCCULTATIONS OF STARS BY THE MOON;

WITH THE

EQUATIONS DEDUCED FROM THE OCCULTATIONS.

1855.

Eclipses, Occultations, and Transits of Jupiter's Satellites.

Day of Observation, 1855.	Satellite.	Phenomenon.	Phase of Phenomenon.	Observer.	Instrument.	Clock or Chronometer.	Time Noted.	Time by Transit Clock.	Sidereal Time.	Mean Solar Time.	Mean Time of Nautical Almanac.	Apparent Error of Nautical Almanac.
							h m s	h m s	h m s	h m s	h m s	m s
July 4	I	(*a*) Ecl. disap.		C	E. Eq.	Earn.	20. 27. 38·5	20. 27. 3·1	20. 27. 42·04	13. 37. 44·16	13. 37. 43·20	— 0·96
July 20	I	(*b*) Ecl. disap.		C	E. Eq.	Earn.	19. 46. 52·0	19. 47. 31·6	19. 47. 47·32	11. 55. 1·37	11. 54. 59·20	— 2·17
July 28	I	(*c*) Ingress ..	Central bis.	C	E. Eq.	Earn.	20. 5. 53·0	20. 5. 44·0	20. 6. 12·34	11. 41. 56·08	11. 40.	
		Ingress	Total ingr.	C	E. Eq.	Earn.	20. 6. 10·0	20. 6. 1·0	20. 6. 29·34	11. 42. 13·04		
Aug. 4	II	Ecl. disap. ..		C	E. Eq.	Earn.	18. 47. 24·0	18. 47. 29·55	18. 47. 59·24	9. 56. 24·42	9. 56. 0·00	— 24·42
Aug. 13	I	Ingress	First cont.	C	E. Eq.	Earn.	18. 59. 32·0	18. 58. 58·9	18. 59. 32·14	9. 32. 32·23		
		(*d*) Ingress ..	Central bis.	C	E. Eq	Earn.	19. 0. 20·0	18. 59. 46·9	19. 0. 20·14	9. 33. 20·10	9. 33.	
		Ingress	Total ingr.	C	E. Eq.	Earn.	19. 1. 9·0	19. 0. 35·9	19. 1. 9·14	9. 34. 8·97		
Aug. 13	I	Egress.....	Central bis.	C	E. Eq.	Earn.	21. 18. 35·0	21. 18. 1·9	21. 18. 35·18	11. 51. 12·49	11. 53.	
		Egress.....	Last cont..	C	E. Eq.	Earn.	21. 19. 38·0	21. 19. 4·9	21. 19. 38·18	11. 52. 15·33		
Aug. 21	I	Occult. im...	First cont.	C	E. Eq.	Earn.	20. 46. 27·0	20. 46. 11·55	20. 46. 47·92	10. 48. 3·16		
		Occult. im...	Central bis.	HT	N. Eq.	A[1]	20. 47. 43·0	20. 47. 44·0	20. 48. 20·37	10. 49. 35·36	10. 48.	
		Occult. im...	Total imm.	HT	N. Eq.	A[1]	20. 49. 8·0	20. 49. 9·0	20. 49. 45·37	10. 51. 0·13		
Aug. 28	I	(*e*) Occult. em.	First em...	AL	E. Eq.	Earn.	20. 36. 34·0	20. 35. 55·25	20. 36. 13·79	10. 9. 59·40		
		Occult. em ..	Central bis.	AL	E. Eq.	Earn.	20. 37. 29·0	20. 36. 50·25	20. 38. 8·79	10. 11. 54·08	10. 12.	
		Occult. em ..	Last cont..	AL	E. Eq.	Earn.	20. 38. 46·0	20. 38. 7·25	20. 39. 25·79	10. 13. 10·88		
Aug. 28	I	(*f*) Ecl. reap.		AL	E. Eq.	Earn.	23. 8. 5·0	23. 7. 26·25	23. 8. 44·88	12. 42. 5·51	12. 42. 15·80	+ 10·29
Aug. 29	III	(*g*) Ecl. reap.		D	Altaz.	G[1]	19. 40. 55·0	19. 41. 32·4	19. 41. 51·88	9. 11. 50·49	9. 12. 30·30	+ 39·81
Aug. 29	I	Egress.....	Central bis.	C	E. Eq.	Earn.	20. 14. 7·0	20. 14. 30·4	20. 14. 49·90	9. 44. 43·11	9. 46.	
		Egress.....	Last cont..	C	E. Eq.	Earn.	20. 15. 16·0	20. 15. 39·4	20. 15. 58·90	9. 45. 51·92		
Aug. 29	II	Ecl. reap.		D	Altaz.	G[1]	20. 17. 20·0	20. 17. 57·4	20. 18. 16·90	9. 48. 9·54	9. 47. 46·4	— 23·14
Aug. 29	II	(*h*) Ecl. reap.		C	E. Eq.	Earn.	20. 17. 6·0	20. 17. 29·4	20. 17. 48·90	9. 47. 41·63	9. 47. 46·4	+ 4·77
Sept. 5	II	(*i*) Ecl. reap.		C	E. Eq.	Earn.	23. 19. 28·0	23. 20. 8·0	23. 20. 34·08	12. 22. 25·50	12. 22. 49·1	+ 23·60
	III	Ecl. reap.		C	E. Eq.	Earn	0. 9. 33·0	0. 10. 13·0	0. 10. 39·11	13. 12. 22·33	13. 14. 4·5	+1.42·17
Sept. 12	I	Ingress	First cont..	E	E. Eq.	Earn.	22. 18. 0·0	22. 17. 54·0	22. 18. 26·27	10. 52. 56·52		
		Ingress	Central bis.	E	E. Eq.	Earn.	22. 21. 0·0	22. 20. 54·0	22. 21. 26·27	10. 55. 56·03	10. 54.	
		Ingress	Total ingr.	E	E. Eq.	Earn.	22. 24. 30·0	22. 24. 24·0	22. 24. 56·27	10. 59. 25·46		
Sept. 12	I	Ingress	Total ingr.	HT	N. Eq.	A[1]	22. 24. 32·0	22. 24. 17·0	22. 24. 49·27	10. 59. 18·48	10. 54	
Sept. 12	II	Occult. im...	First cont.	E	E. Eq.	Earn.	22. 20. 30·0	22. 20. 24·0	22. 20. 56·27	10. 55. 26·11		
		Occult. im...	Central bis.	E	E. Eq.	Earn.	22. 22. 30·0	22. 22. 24·0	22. 22. 56·27	10. 57. 25·79	10. 58.	
		Occult. im...	Total imm.	E	E. Eq.	Earn.	22. 25. 0·0	22. 24. 54·0	22. 25. 26·27	10. 59. 55·37		
Sept. 12	III	Occult. im...	First cont.	E	E. Eq.	Earn.	22. 42. 0·0	22. 41. 54·0	22. 42. 26·28	11. 16. 52·60		
		Occult. im...	Central bis.	E	E. Eq.	Earn.	22. 45. 30·0	22. 45. 24·0	22. 45. 56·28	11. 20. 22·03	11. 22.	
		Occult. im...	Total imm.	E	E. Eq.	Earn.	22. 49. 0·0	22. 48. 54·0	22. 49. 26·28	11. 23. 51·45		

(*a*) Very good ; the planet steady and well defined.
(*b*) The observer suspected that at 19^h. 45^m. 30^s. clock-time, the brightness of the satellite began to diminish.
(*c*) Very bad ; the planet clouded and exceedingly tremulous.
(*d*) The central bisection very doubtful ; the planet very unsteady and undulating.
(*e*) The planet very tremulous ; the observation not good.
(*f*) The planet very steady ; the observation good.
(*g*) Cloudy ; the observation not good.
(*h*) and (*i*) Good.

ECLIPSES, OCCULTATIONS, and TRANSITS of JUPITER'S SATELLITES—*concluded.*

Day of Observation, 1855.	Satellite.	Phenomenon.	Phase of Phenomenon.	Observer.	Instrument.	Clock or Chronometer.	Time Noted.	Time by Transit Clock.	Sidereal Time.	Mean Solar Time.	Mean Time of Nautical Almanac.	Apparent Error of Nautical Almanac.
							h m s	h m s	h m s	h m s	h m s	m s
Sept. 12	III	Occult. im...	First cont..	HT	N. Eq.	A[1]	22. 43. 0·0	22. 42. 45·0	22. 43. 17·28	11. 17. 43·46		
		Occult. im...	Central bis.	HT	N. Eq.	A[1]	22. 45. 0·0	22. 44. 45·0	22. 45. 17·28	11. 19. 43·13	11. 22.	
		Occult. im...	Total imm.	HT	N. Eq.	A[1]	22. 47. 20·0	22. 47. 5·0	22. 47. 37·28	11. 22. 2·75		
Sept. 20	I	Ecl. reap. ...		D	E. Eq.	Earn.	0. 53. 45·0	0. 53. 50·9	0. 54. 32·27	12. 57. 9·68	12. 56. 59·70	— 9·98
Sept. 21	I	(*a*) Ingress..	First cont.	C	E. Eq.	Earn.	19. 5. 3·0	19. 5. 10·2	19. 5. 51·97	7. 5. 30·60		
		Ingress	Central bis.	C	E. Eq.	Earn.	19. 6. 38·0	19. 6. 45·2	19. 7. 26·97	7. 7. 5·33	7. 6.	
		Ingress	Total ingr.	C	E. Eq.	Earn.	19. 8. 30·0	19. 8. 37·2	19. 9. 18·97	7. 8. 57·04		
Sept. 21	II	(*b*) Ingress ..	First cont.	C	E. Eq.	Earn.	19. 55. 53·0	19. 56. 0·2	19. 56. 42·00	7. 56. 12·31		
		Ingress	Central bis.	C	E. Eq.	Earn.	19. 56. 48·0	19. 56. 55·2	19. 57. 37·00	7. 57. 7·15	7. 59.	
		Ingress	Total ingr.	C	E. Eq.	Earn.	19. 58. 4·0	19. 58. 11·2	19. 58. 53·00	7. 58. 22·94		
Sept. 21	I	(*c*) Egress...	First appear.	C	E. Eq.	Earn.	21. 21. 58·0	21. 22. 5·5	21. 22. 47·35	9. 22. 3·55		
		Egress.....	Central bis.	C	E. Eq.	Earn.	21. 23. 21·0	21. 23. 28·5	21. 24. 10·35	9. 23. 26·32	9. 26.	
		Egress	Last cont..	C	E. Eq.	Earn.	21. 24. 40·0	21. 24. 47·5	21. 25. 29·35	9. 24. 45·10		
Sept. 21	II	(*d*) Egress ..	First appear.	C	E. Eq.	Earn.	22. 50. 2·0	22. 50. 9·5	22. 50. 51·40	10. 49. 53·17		
		Egress.....	Central bis.	C	E. Eq.	Earn.	22. 51. 38·0	22. 51. 45·5	22. 52. 27·40	10. 51. 28·90	10. 55.	
		Egress.....	Last cont..	C	E. Eq.	Earn.	22. 52. 58·0	22. 53. 5·5	22. 53. 47·40	10. 52. 48·69		
Sept. 22	I	Ecl. reap....		D	Altaz.	G[1]	19. 30. 2·0	19. 29. 28·3	19. 30. 11·00	7. 25. 49·74	7. 25. 55·40	+ 5·66
Sept. 25	IV	(*e*) Occult.im.	Total imm.	C	E. Eq.	Earn.	21. 48. 53·0	21. 49. 6·4	21. 49. 51·99	9. 33. 20·12	9. 33.	
Oct. 16	II	Egress	Central bis.	D	E. Eq.	Earn.	20. 54. ±	20. 54. ±	20. 54. ±	7. 15. ±	7. 20.	
		Egress	Last cont..	D	E. Eq.	Earn.	20. 56. ±	20. 56. ±	20. 56. ±	7. 17. ±		
Oct. 18	III	(*f*) Ecl. disap.		D	E. Eq.	Earn.	23. 38. 40·0	23. 39. 14·0	23. 39. 28·66	9. 52. 12·95	9. 53. 55·70	+ 1. 42·75
Oct. 18	III	(*g*) Ecl. disap.		AB	Altaz.	G[1]	23. 39. 25·0	23. 39. 39·0	23. 39. 53·66	9. 52. 37·88	9. 53. 55·70	+ 1. 17·82
Oct. 20	IV	(*h*) Ingress ..	Total ingr.	HT	E. Eq.	Earn.	1. 14. 0·0	1. 14. 34·0	1. 14. 51·17	11. 19. 28·02	11. 16.	
Nov. 30	I	(*i*) Ecl. reap .		D	E. Eq.	Earn.	0. 50. 28·0	0. 50. 27·0	0. 51. 25·11	8. 14. 53·46	8. 13. 57·40	— 56·06
Dec. 18	IV	Occult. em ..	Last cont..	C	E. Eq.	Arn. 82	0. 6. 20·0	0. 6. 53·4	0. 6. 57·89	6. 19. 47·10	6. 21.	
Dec. 18	III	Egress	First appear.	C	E. Eq.	Arn. 82	0. 50. 10·0	0. 50. 45·3	0. 50. 49·81	7. 3. 31·83		
		Egress	Central bis.	C	E. Eq.	Arn. 82	0. 51. 47·0	0. 52. 22·3	0. 52. 26·81	7. 5. 8·56	7. 4.	
		Egress	Last cont..	C	E. Eq.	Arn. 82	0. 53. 50·0	0. 54. 25·3	0. 54. 29·81	7. 7. 11·23		
Dec. 19	II	(*k*) Egress ..	Last cont..	D	E. Eq.	Arn. 82	0. 54. 0·0	0. 54. 14·2	0. 54. 19·71	7. 3. 5·24	7. 1.	

(*a*) Doubtful; the planet exceedingly tremulous.
(*b*) Pretty good.
(*c*) Good.
(*d*) Tolerably good; the air was foggy and the satellite faint.
(*e*) Very doubtful; the satellite seen only by glimpses, Jupiter being tremulous and ill defined.
(*f*) Good.
(*g*) Very uncertain.
(*h*) Very uncertain; the planet very tremulous.
(*i*) The sky hazy; the recorded time is probably too late.
(*k*) Very doubtful; the planet very tremulous.

OCCULTATIONS of STARS by the MOON.

Day of Observation, 1855.	Star's Name.	Phenomenon.	Moon's Limb.	Observer.	Instrument.	Clock or Chronometer.	Time noted.	Time by Transit Clock.	Sidereal Time.	Mean Solar Time.
							h m s	h m s	h m s	h m s
Mar 5	(*a*) γ Virginis S. Star.....	Disappearance	Bright	D	E. Equat.	Earn.	9. 13. 38	9. 13. 25·80	9. 13. 51·55	10. 21. 29·16
	(*b*) γ Virginis N. Star	Disappearance	Bright	D	E. Equat.	Earn.	9. 13. 45	9. 13. 32·80	9. 13. 58·55	10. 21. 36·14
Apr. 7	3 Sagittarii....	Reappearance	Dark	M	Altaz.	G[1]	17. 4. 21·0	17. 4. 20·00	17. 5. 12·93	16. 1. 48·37
Apr. 23	(*c*) λ Cancri	Disappearance	Dark	E	Altaz.	G[1]	12. 57. 33·8	12. 58. 25·10	12. 58. 33·21	10. 52. 54·53
	(*d*) λ Cancri	Disappearance	Dark	AL	E. Equat.	Earn.	12. 57. 52·6	12. 58. 25·10	12. 58. 33·21	10. 52. 54·53
Aug. 30	(*e*) o Piscium ...	Disappearance	Bright	AL	E. Equat.	Earn.	23. 6. 46·8	23. 7. 12·80	23. 7. 33·37	12. 33. 2·37
	(*f*) o Piscium ...	Reappearance	Dark	AL	E. Equat.	Earn.	0. 14. 14·5	0. 14. 40·50	0. 15. 1·11	13. 40. 19·07
Oct. 24	o Piscium....	Disappearance	Dark	C	E. Equat.	Earn.	23. 56. 17·4	23. 56. 55·15	23. 57. 17·96	9. 46. 23·87

(*a*) (*b*) The South Star disappeared first, but from the Moon's Limb being so tremulous, it was exceedingly difficult to note the exact time of disappearnce of either star, and the observation is therefore probably incorrect to a few seconds. Just before the occultation, the stars were lost several seconds in the glare of the Moon, and then re-appeared again.
(*c*) Instantaneous; the unilluminated limb of the Moon was distinctly visible.
(*d*) Instantaneous; observation good.
(*e*) (*f*) Good.

Disappearance of γ Virginis (South Star), 1855, March 5^d. 10^h. 21^m. 29^s·16 + t^s, Greenwich Mean Solar Time.

Right Ascension of Zenith in arc	138. 27. 53·25 + 15·0 × t
Moon's Right Ascension in arc.....	187. 57. 47·85 + x + 0·4578 × t
Moon's N.P.D.....	90. 6. 40·18 + y + 0·2362 × t
Moon's Horizontal Equatoreal Parallax	55. 10·60 × $\left(1 + \frac{m}{1000}\right)$
Moon's Semidiameter	15. 4·14 × $\left(1 + \frac{n}{1000}\right)$
Star's Right Ascension in arc	188. 34. 54·15 + e''
Star's N.P.D.	90. 39. 21·76 + f
Geocentric R.A. of corresponding point in arc	188. 8. 28·73 + e + 0·0934 × t − 1·5854 × m
Geocentric N.P.D. of corresponding point.....	89. 56. 8·62 + f − 0·0016 × t − 2·5931 × m

Geocentric distance of center from corresponding point,

$$14'\ 59''\cdot78 + 0''\cdot7124 \times \{ + e - x - 0''\cdot3644 \times t - 1''\cdot5854 \times m \}$$
$$- 0''\cdot7020 \times \{ f - 0''\cdot0016 \times t - 2''\cdot5931 \times m \}$$
$$+ 0''\cdot7020 \times \{ y + 0''\cdot2362 \times t \}$$

Final Equation.

$$+ 4''\cdot36 = + 0''\cdot7124 \times e - 0''\cdot7020 \times f - 0''\cdot7124 \times x + 0''\cdot7020 \times y - 0''\cdot0927 \times t + 0''\cdot6910 \times m - 0''\cdot9041 \times n$$

Disappearance of γ Virginis (North Star), 1855, March 5^d. 10^h. 21^m. 36^s·14 + t^s, Greenwich Mean Solar Time.

Right Ascension of Zenith in arc	138. 29. 38·25 + 15·0 × t
Moon's Right Ascension in arc.....	187. 57. 51·00 + x + 0·4578 × t
Moon's N.P.D.....	90. 6. 41·83 + y + 0·2362 × t
Moon's Horizontal Equatoreal Parallax	55. 10·60 × $\left(1 + \frac{m}{1000}\right)$
Moon's Semidiameter	15. 4·15 × $\left(1 + \frac{n}{1000}\right)$
Star's Right Ascension in arc	188. 34. 57·00 + e''
Star's N.P.D.	90. 39. 18·84 + f
Geocentric R.A. of corresponding point in arc ..	188. 8. 32·24 + e + 0·0934 × t − 1·5848 × m
Geocentric N.P.D. of corresponding point	89. 56. 5·71 + f − 0·0016 × t − 2·5931 × m

Geocentric distance of center from corresponding point,

$$15'\ 3''\cdot24 + 0''\cdot7099 \times \{ + e - x - 0''\cdot3644 \times t - 1''\cdot5848 \times m \}$$
$$- 0''\cdot7042 \times \{ f - 0''\cdot0016 \times t - 2''\cdot5931 \times m \}$$
$$+ 0''\cdot7042 \times \{ y + 0''\cdot2362 \times t \}$$

Final Equation.

$$+ 0''\cdot91 = + 0''\cdot7099 \times e - 0''\cdot7042 \times f - 0''\cdot7099 \times x + 0''\cdot7042 \times y - 0''\cdot0913 \times t + 0''\cdot7010 \times m - 0''\cdot9042 \times n$$

Reappearance of 3 Sagittarii, 1855, April $7^d.\ 16^h.\ 1^m.\ 48^s.37 + t^s$, Greenwich Mean Solar Time.

	° ′ ″	″	″	
Right Ascension of Zenith in arc	256. 18. 13·95	+	15·0	× t
Moon's Right Ascension in arc	264. 47. 54·15 + x	+	0·6381	× t
Moon's N. P. D.	116. 54. 33·33 + y	+	0·0593	× t
Moon's Horizontal Equatoreal Parallax	58. 19·81 × $\left(1 + \frac{m}{1000}\right)$			
Moon's Semidiameter	15. 55·77 × $\left(1 + \frac{n}{1000}\right)$			
Star's Right Ascension in arc	264. 36. 38·40 + e''			
Star's N.P.D.	117. 46. 19·80 + f			
Geocentric R.A. of corresponding point in arc	264. 30. 44·82 + e + 0·1707 × t − 0·3536 × m			
Geocentric N.P.D. of corresponding point	116. 49. 21·14 + f − 0·0100 × t − 3·4187 × m			

Geocentric distance of center from corresponding point,

′ ″ ″
16. 9·85 + 0·8445 × $\{ -e + x + 0{\cdot}4674 \times t + 0{\cdot}3536 \times m \}$
− 0·3230 × $\{ f - 0{\cdot}0100 \times t - 3{\cdot}4187 \times m \}$
+ 0·3208 × $\{ y + 0{\cdot}0593 \times t \}$

Final Equation.

$$-14{\cdot}08 = -0{\cdot}8445 \times e - 0{\cdot}3230 \times f + 0{\cdot}8445 \times x + 0{\cdot}3208 \times y + 0{\cdot}4169 \times t + 1{\cdot}4028 \times m - 0{\cdot}9558 \times n$$

Disappearance of λ Cancri, 1855, April $23^d.\ 10^h.\ 52^m.\ 54^s.53 + t^s$, Greenwich Mean Solar Time.

	° ′ ″	″	″	
Right Ascension of Zenith in arc	194. 38. 18·15	+	15·0	× t
Moon's Right Ascension in arc	123. 21. 21·45 + x	+	0·5362	× t
Moon's N.P.D.	64. 48. 24·67 + y	+	0·0991	× t
Moon's Horizontal Equatoreal Parallax	54. 21·35 × $\left(1 + \frac{m}{1000}\right)$			
Moon's Semidiameter	14. 50·62 × $\left(1 + \frac{n}{1000}\right)$			
Star's Right Ascension in arc	122. 58. 39·90 + e''			
Star's N.P.D.	65. 31. 22·80 + f			
Geocentric R.A. of corresponding point in arc	123. 34. 12·38 + e + 0·0483 × t + 2·1325 × m			
Geocentric N.P.D. of corresponding point	64. 57. 20·82 + f − 0·0565 × t − 2·0420 × m			

Geocentric distance of center from corresponding point,

′ ″ ″
14. 40·17 + 0·7180 × $\{ +e - x - 0{\cdot}4879 \times t + 2{\cdot}1325 \times m \}$
+ 0·6098 × $\{ f - 0{\cdot}0565 \times t - 2{\cdot}0420 \times m \}$
− 0·6086 × $\{ y + 0{\cdot}0991 \times t \}$

Final Equation.

$$+10{\cdot}45 = +0{\cdot}7180 \times e + 0{\cdot}6098 \times f - 0{\cdot}7180 \times x - 0{\cdot}6086 \times y - 0{\cdot}4450 \times t + 0{\cdot}2859 \times m - 0{\cdot}8906 \times n$$

Disappearance of o Piscium, 1855, August $30^d.\ 12^h.\ 33^m.\ 2^s\cdot37 + t^s$, Greenwich Mean Solar Time.

Right Ascension of Zenith in arc	346. 53. 20·55	+ 15·0 × t
Moon's Right Ascension in arc	23. 49. 41·25 + x	+ 0·5405 × t
Moon's N. P. D.	81. 0. 30·88 + y	− 0·2643 × t
Moon's Horizontal Equatoreal Parallax	59. 31·21 × $\left(1 + \frac{m}{1000}\right)$	
Moon's Semidiameter	16. 15·26 × $\left(1 + \frac{n}{1000}\right)$	
Star's Right Ascension in arc	24. 26. 41·40 + e''	
Star's N. P. D.	81. 34. 8·40 + f	
Geocentric R. A. of corresponding point in arc	24. 3. 45·52 + e	+ 0·1265 × t − 1·3759 × m
Geocentric N. P. D. of corresponding point	80. 52. 37·16 + f	+ 0·0138 × t − 2·4912 × m

Geocentric distance of center from corresponding point,

$$\begin{aligned} 15'.58''\cdot93 &+ 0''\cdot8587 \times \{ + e - x - 0\cdot4140 \times t - 1\cdot3759 \times m \} \\ &- 0\cdot4937 \times \{ f + 0\cdot0138 \times t - 2\cdot4912 \times m \} \\ &+ 0\cdot4943 \times \{ y - 0\cdot2643 \times t \} \end{aligned}$$

Final Equation.

$$+16\cdot33 = + 0\cdot8587 \times e - 0\cdot4937 \times f - 0\cdot8587 \times x + 0\cdot4943 \times y - 0\cdot4930 \times t + 0\cdot0484 \times m - 0\cdot9753 \times n$$

Reappearance of o Piscium, 1855, August $30^d.\ 13^h.\ 40^m.\ 19^s\cdot07 + t^s$, Greenwich Mean Solar Time.

Right Ascension of Zenith in arc	3. 45. 16·65	+ 15·0 × t
Moon's Right Ascension in arc	24. 26. 3·15 + x	+ 0·5406 × t
Moon's N. P. D.	80. 42. 44·71 + y	− 0·2631 × t
Moon's Horizontal Equatoreal Parallax	59. 28·65 × $\left(1 + \frac{m}{1000}\right)$	
Moon's Semidiameter	16. 14·56 × $\left(1 + \frac{n}{1000}\right)$	
Star's Right Ascension in arc	24. 26. 41·40 + e''	
Star's N. P. D.	81. 34. 8·40 + f	
Geocentric R. A. of corresponding point in arc	24. 13. 24·48 + e	+ 0·1493 × t − 0·7969 × m
Geocentric N. P. D. of corresponding point	80. 53. 25·10 + f	+ 0·0080 × t − 2·4433 × m

Geocentric distance of center from corresponding point,

$$\begin{aligned} 16'.25''\cdot38 &+ 0''\cdot7504 \times \{ - e + x + 0\cdot3913 \times t + 0\cdot7969 \times m \} \\ &+ 0\cdot6500 \times \{ f + 0\cdot0080 \times t - 2\cdot4433 \times m \} \\ &- 0\cdot6496 \times \{ y - 0\cdot2631 \times t \} \end{aligned}$$

Final Equation.

$$-10\cdot82 = - 0\cdot7504 \times e + 0\cdot6500 \times f + 0\cdot7504 \times x - 0\cdot6496 \times y + 0\cdot4697 \times t - 0\cdot9902 \times m - 0\cdot9746 \times n$$

Disappearance of o Piscium, 1855, October, $24^d.\ 9^h.\ 46^m.\ 23^s.87 + t^s$, Greenwich Mean Solar Time.

	° ′ ″	″	″
Right Ascension of Zenith in arc	359. 19. 29·40	+ 15·0	× t
Moon's Right Ascension in arc	23. 54. 31·35 + x	+ 0·5507	× t
Moon's N. P. D.	80. 50. 3·13 + y	− 0·2717	× t
Moon's Horizontal Equatoreal Parallax.....	59. 56·80 × $\left(1 + \frac{m}{1000}\right)$		
Moon's Semidiameter	16. 22·28 × $\left(1 + \frac{n}{1000}\right)$		
Star's Right Ascension in arc	24. 26. 54·00 + e''		
Star's N. P. D.....	81. 34. 4·00 + f	″	″
Geocentric R. A. of corresponding point in arc.....	24. 10. 48·76 + e	+ 0·1454 × t	− 0·9652 × m
Geocentric N. P. D. of corresponding point.....	80. 52. 51·66 + f	+ 0·0098 × t	− 2·4723 × m

Geocentric distance of center from corresponding point,

$$16'.\,19''.60 + 0''.9728 \times \left\{ + e - x - 0.4053 \times t - 0.9652 \times m \right\}$$
$$+ 0.1725 \times \left\{ f + 0.0098 \times t - 2.4723 \times m \right\}$$
$$- 0.1717 \times \left\{ y - 0.2717 \times t \right\}$$

Final Equation.

$$+ 2.68 = + 0.9728 \times e + 0.1725 \times f - 0.9728 \times x - 0.1717 \times y - 0.3459 \times t - 1.3654 \times m - 0.9823 \times n$$

ROYAL OBSERVATORY, GREENWICH.

MEASURES OF DISTANCE AND ANGLE OF POSITION

OF THE

COMPONENTS OF γ VIRGINIS;

AND OF

THE RINGS OF SATURN;

MADE WITH A DOUBLE-IMAGE MICROMETER

UPON THE EAST EQUATOREAL.

1855.

RESULTS of MEASURES of DISTANCE and ANGLE of POSITION, for each Day's Observations of the COMPONENTS of γ VIRGINIS, made at the Royal Observatory, Greenwich, with a Double-Image Micrometer on the East Equatoreal.

Day and Mean Solar Hour.	Method of Observation.	Observed Distance.	Number of Measures.	Observed Angle of Position.	Observer.	REMARKS.
1855 d h		″		°		
May 18. 8	Equal Distances	3·40	10	174	M	
May 25. 8	Equal Distances	3·49	10	173	M	

MEASURES of the AXIS MAJOR and AXIS MINOR of the EXTERIOR EDGE of the OUTER BRIGHT RING of SATURN, made with the DOUBLE-IMAGE MICROMETER.

Day and Mean Solar Hour.	Part Measured.	Number of Measures.	Observed Value in Arc.	Approximate Angle of Position of measured Part.	Observer.	REMARKS.
1855. d h			″	°		
Nov. 30. 12	Axis Major	6	47·25	84	M	
	Axis Minor.....	8	20·96	174	M	
Dec. 5. 11	Axis Major	12	46·86	84	M	The sky was splendidly clear, and the definition of images sensibly perfect. The observations worthy of great confidence.
	Axis Minor.....	8	20·44	174	M	
Dec. 6. 10	Axis Major	12	46·79	84	M	A beautiful night; the planet was quite as well seen as on last night. The observations are perhaps better.
	Axis Minor.....	8	20·99	174	M	
Dec. 12. 9	Axis Major	10	46·71	85	M	The planet well seen.
	Axis Minor.....	10	20·91	175	M	
Dec. 18. 8	Axis Major	10	46·78	85	M	The images not quite so steady as usual. Some of the measures were, however, very good.
	Axis Minor.....	10	20·88	175	M	
Dec. 22. 9	Axis Major	8	46·81	84	M	For an hour the sky was bright, but it clouded suddenly, and interrupted the observations.
	Axis Minor.....	10	20·86	174	M	
1856.						
Jan. 10. 8	Axis Major	10	46·14	85	M	The planet was seen with great distinctness.
	Axis Minor.....	10	20·53	175	M	
Jan. 14. 8	Axis Major	10	46·21	85	M	The images at first were confused and tremulous, but they became better afterwards.
	Axis Minor.....	10	20·46	175	M	
Jan. 15. 8	Axis Major.....	10	46·15	85	M	Ditto, ditto. Clouds suddenly put an end to the observations.
Jan. 25. 7	Axis Major.....	10	45·78	85	M	
	Axis Minor.....	10	20·58	175	M	
Feb. 14. 11	Axis Major	8	43·98	85	M	The sky became hazy, and the images were tremulous during the observations.
	Axis Minor.....	10	20·01	175	M	
Apr. 19. 8	Axis Major	8	39·06	84	M	
	Axis Minor.....	10	18·15	174	M	

MEASURES for determining the BREADTH of the WHOLE SYSTEM of BRIGHT RINGS; the BREADTH of the DARK SPACE between the BRIGHT RINGS and the BALL; and the DIAMETER of the BALL of SATURN.

THE observations which follow in tabular arrangement were made by placing successively the moveable Image of the Extreme Edge East or West of the Outer Ring on the fixed Image of the Edges West or East of the Exterior Portions of the Bright Rings; of the Inner Portions of the Bright Rings; and of the Ball.

When the moveable Image is West the micrometer-readings corresponding to the contacts explained above, are denoted in the tabular arrangement by the numbers 1, 2, 3; and when the moveable Image is East by the numbers 4, 5, 6. The numbers 1, 2, 3, denote therefore measures of the Western Portions of the Rings, and the numbers 4, 5, 6, denote measures of the Eastern Portions.

The differences between the successive measures 1–2, 2–3, and 4–5, 5–6, give plainly the values of the Breadth of the System of Bright Rings and of the Dark Space between the Ball and the Bright Rings; and the differences 1–3, 4–6, give in like manner the whole space between the Extreme Edge of the Outer Ring and the Edge of the Ball on the West side and the East side respectively. If then the value of this latter space be obtained from all the observations East and West in one evening, and if double this value be subtracted from the value of the Axis Major of the Outer Ring obtained from all the observations of the evening, the difference will plainly be the value of the Equatoreal Diameter of the Ball. The daily values of the Semidiameter of Ball thus found are reduced to the mean distance log. $^{-1}$0·9795 of the Planet from the Earth, for comparison with Mr. Main's definitive value of this element, namely, 8″·75; and the results are given in the column "Deduced Semidiameter of Ball at Mean Distance."

Day and Mean Solar Hour.	Numbers denoting Parts measured.	Micrometer Readings.	Breadth of Rings in Revolutions.	Breadth of Dark Space in Revolutions.	Mean Breadth of Rings in Revolutions.	Mean Breadth of Dark Space in Revolutions.	Mean Breadth of Rings in Arc.	Mean Breadth of Dark Space in Arc.	Deduced Semidiameter of Ball at Mean Distance.
1855. d h		r	r	r	r	r	″	″	″
December 5 11	4	17·049	0·809		0·906	0·966	6·55	6·98	8·36
	5	16·240		1·005					
	6	15·235							
	1	4·116	0·823						
	2	4·939							
	3	6·022		1·083					
	4	17·091	0·874						
	5	16·217							
	6	15·203		1·014					
	1	4·149	0·814						
	2	4·963							
	3	5·990		1·027					
	4	17·121	1·033						
	5	16·088							
	6	15·200		0·888					
	1	4·161	0·822						
	2	4·983							
	3	6·003		1·020					
	4	17·081	0·909						
	5	16·172		0·983					
	6	15·189							

Day and Mean Solar Hour.	Numbers denoting Parts measured.	Micrometer Readings.	Breadth of Rings in Revolutions.	Breadth of Dark Space in Revolutions.	Mean Breadth of Rings in Revolutions.	Mean Breadth of Dark Space in Revolutions.	Mean Breadth of Rings in Arc.	Mean Breadth of Dark Space in Arc.	Deduced Semidiameter of Ball at Mean Distance.
1855. d h		r	r	r	r	r	″	″	″
December 5. 11	1	4·128							
	2	5·072	0·944						
	3	5·991		0·919					
	4	17·051							
	5	16·060	0·991						
	6	15·262		0·798					
	1	4·033							
	2	5·070	1·037						
	3	5·987		0·917					
	4	17·034							
	5	16·100	0·934						
	6	15·211		0·889					
	1	4·041							
	2	4·927	0·886						
	3	5·980		1·053					
December 6. 10	4	17·223			0·877	0·971	6·34	7·02	8·47
	5	16·305	0·918						
	6	15·354		0·951					
	1	4·177							
	2	5·025	0·848						
	3	5·956		0·931					
	4	17·094							
	5	16·155	0·939						
	6	15·254		0·901					
	1	4·153							
	2	4·957	0·804						
	3	5·992		1·035					
	4	17·075							
	5	16·133	0·942						
	6	15·299		0·834					
	1	4·146							
	2	5·036	0·890						
	3	5·999		0·963					
	4	17·014							
	5	16·177	0·837						
	6	15·173		1·004					
	1	4·135							
	2	4·993	0·858						
	3	5·945		0·952					
	4	16·995							
	5	16·165	0·830						
	6	15·143		1·022					
	1	4·092							
	2	4·923	0·831						
	3	5·992		1·069					
	4	17·029							
	5	16·135	0·894						
	6	15·202		0·933					

Day and Mean Solar Hour.	Numbers denoting Parts measured.	Micrometer Readings.	Breadth of Rings in Revolutions.	Breadth of Dark Space in Revolutions.	Mean Breadth of Rings in Revolutions.	Mean Breadth of Dark Space in Revolutions.	Mean Breadth of Rings in Arc.	Mean Breadth of Dark Space in Arc.	Deduced Semidiameter of Ball at Mean Distance.
1855. d h		r	r	r	r	r	"	"	"
December 6. 10	1	4·051	0·937						
	2	4·988		1·052					
	3	6·040							
December 12. 9	4	17·079	0·889		0·839	0·978	6·06	7·07	8·61
	5	16·190		0·880					
	6	15·310							
	1	4·125	0·880						
	2	5·005		0·952					
	3	5·957							
	4	17·071	0·848						
	5	16·223		0·884					
	6	15·339							
	1	4·134	0·827						
	2	4·961		1·039					
	3	6·000							
	4	17·050	(0·638)						
	5	16·412		1·132					
	6	15·280							
	1	4·170	1·004						
	2	5·174		0·877					
	3	6·051							
	4	17·058	0·776						
	5	16·282		1·055					
	6	15·227							
	1	4·108	0·874						
	2	4·982		1·016					
	3	5·998							
	4	17·083	0·881						
	5	16·202		0·963					
	6	15·239							
	1	4·179	0·771						
	2	4·950		0·985					
	3	5·935							
December 18. 8	1	4·112	0·839		0·899	0·938	6·50	6·78	8·45
	2	4·951		1·083					
	3	6·034							
	4	17·157	0·896						
	5	16·261		0·983					
	6	15·278							
	1	4·172	0·960						
	2	5·132		0·791					
	3	5·923							
	4	17·072	0·990						
	5	16·082		0·787					
	6	15·295							
	1	4·171	0·910						
	2	5·081		0·922					
	3	6·003							

Day and Mean Solar Hour.	Numbers denoting Parts measured.	Micrometer Readings.	Breadth of Rings in Revolutions.	Breadth of Dark Space in Revolutions.	Mean Breadth of Rings in Revolutions.	Mean Breadth of Dark Space in Revolutions.	Mean Breadth of Rings in Arc.	Mean Breadth of Dark Space in Arc.	Deduced Semidiameter of Ball at Mean Distance.
1855. d h		r	r	r	r	r	″	″	″
December 18. 8	4	17·182	0·941						
	5	16·241		1·124					
	6	15·117							
	1	4·157	0·830						
	2	4·987		1·036					
	3	6·023							
	4	17·043	0·740						
	5	16·303		0·985					
	6	15·318							
	1	4·140	0·988						
	2	5·128		0·844					
	3	5·972							
	4	17·014	0·892						
	5	16·122		0·822					
	6	15·300							
December 22. 9	1	4·132	1·041		0·947	0·932	6·85	6·74	8·27
	2	5·173		0·786					
	3	5·959							
	4	17·082	0·880						
	5	16·202		0·994					
	6	15·208							
	1	4·078	1·022						
	2	5·100		0·943					
	3	6·043							
	4	17·052	0·773						
	5	16·279		0·970					
	6	15·309							
	1	4·110	1·048						
	2	5·158		0·924					
	3	6·082							
	4	17·050	0·827						
	5	16·223		0·960					
	6	15·263							
	1	4·118	1·019						
	2	5·137		0·923					
	3	6·060							
	4	17·060	0·962						
	5	16·098		0·952					
	6	15·146							
1856.									
January 10. 8	4	17·005	0·830		0·868	0·940	6·27	6·79	8·51
	5	16·175		1·025					
	6	15·150							
	1	4·142	0·963						
	2	5·105		0·850					
	3	5·955							
	4	16·953	0·782						
	5	16·171		0·949					
	6	15·222							

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